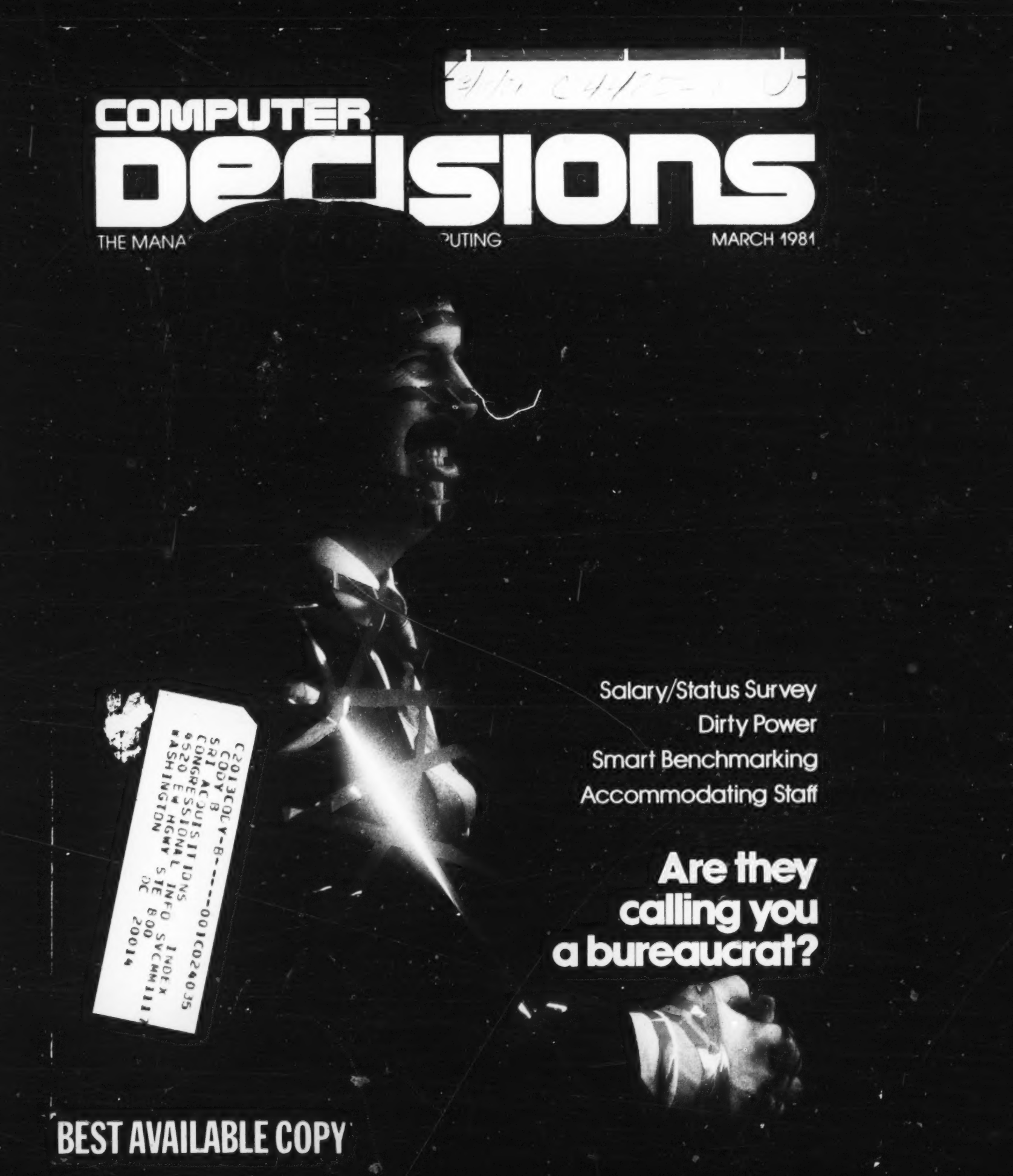
COMPUTER DECISIONS

THE MANA[illegible]PUTING

MARCH 1981



Salary/Status Survey
Dirty Power
Smart Benchmarking
Accommodating Staff

Are they calling you a bureaucrat?

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COMPUTER DECISIONS

THE MANAGEMENT MAGAZINE OF COMPUTING

MARCH 1981

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COVER: Kosoff/Butensky Photography

How do you compare on pay, perks, and prospects?

Here's more on how 600-plus MIS/dp managers in the U.S. are faring economically—and how they're shaping their futures. by David Whieldon

When you mingle with your MIS dp counterparts at meetings or social affairs, wouldn't you like to ask how well they're doing in their jobs? It's never easy to get the real facts on how they're compensated, how they're managing their shops, and how they're planning their careers.

But in this installment of the *Computer Decisions* report on its salary and status survey for 1980, you'll have an opportunity to pick the brains of more than 600 of your colleagues in organizations around the country. That should enable you to take stock of your own situation, determine how to improve it, and perhaps revise your goals for MIS dp or general management.

The data allow us to sketch a

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typical manager—that is, a hypothetical person who tends to be right in the middle of the spectrum when each set of data is distributed. (The middle figure in the data spread, of course, is the media.) Therefore, according to survey findings, the typical manager

- Is earning a salary of nearly $32,000 yearly
- Got an increase of 9½ percent with the last pay boost
- Got that increase in the same position and in the same organization in which he or she is presently located
- Has been in only two organizations in the past ten years
- Would require nearly 22 percent more in pay to make a move, plus other benefits and incentives
- Is substantially challenged by procuring and maintaining staff, running efficient shops, and dealing with end-users
- Bears the title of manager of data processing, systems, operations, information systems, or management-information systems
- Is the highest-ranking dp or information-handling executive in the organization
- Supervises twelve employees
- Works for a profit-making organization generating sales revenues of $75 million annually

And now some of the details, especially as they apply to the MIS dp managers who fall above or below the medians. First, then, are figures revealing salaries of the surveyed managers: Ninety-three percent of the 596 men and women answering the question on salary are getting between $15,000 and $50,000. (Only 1 percent are paid less than $15,000.) But, more specifically, the median, or middle salary is nearly $32,000, roughly one manager in five

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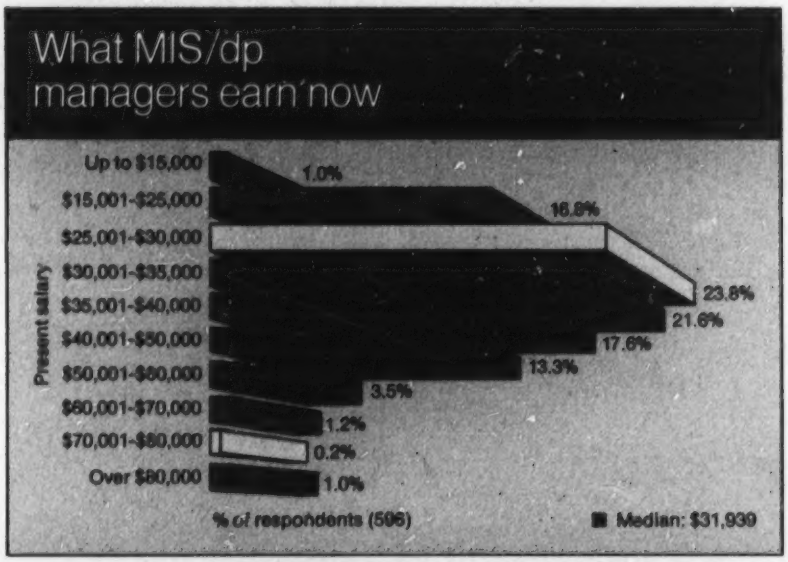

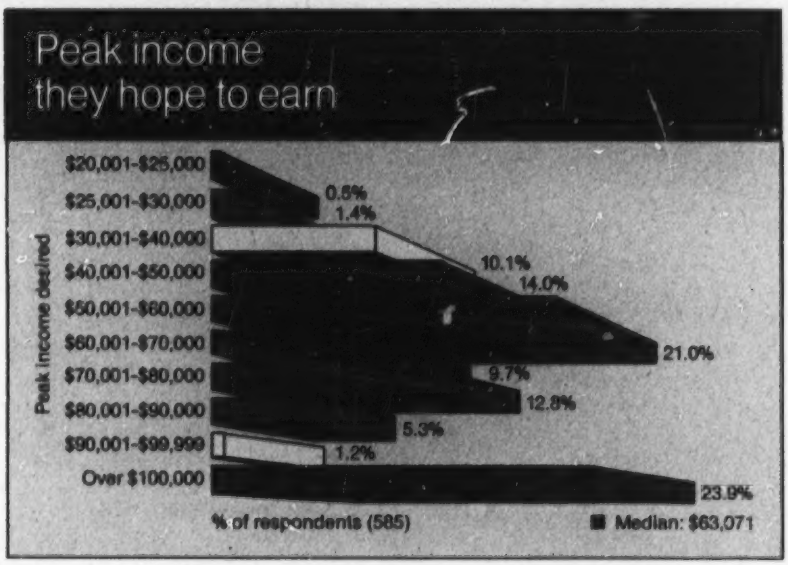

earns between $30,000 and $35,000. However, those earning $25,000 and $30,000 annually constitute the largest single group, or 23.8 percent of the total. One manager in six earns between $35,000 and $40,000; one in six receives $15,000 to $25,000. And 13.3 percent earn $40,001 to $50,000.

Compensation of more than $80,000 a year is the claim made by six of the respondents—who are, thus, one in a hundred. One of them is a senior vice president with a Southern insurance company, supervising a staff of 100 to 129 persons and working with an MIS/dp budget of between $5 and $10 million. He reports that his last pay increase was a 5 to 7 percent boost over his previous salary from the same company, and that he's worked for only two organizations in the last ten years. He seems to be well on his way to earning more than $100,000 yearly, one of his goals, and he's interested in moving from information management into general management, as he looks for "greater challenge." Moreover, he asserts, it would require a salary increase of 20 percent or more to lure him away from his present position, plus "promotion opportunities and stock options."

But somewhat more typical, perhaps, of respondents is the dp manager of a Texas manufacturing/processing concern, whose salary falls in the median category of between $30,000 and $35,000. He too has ambitions of moving up into general management and earning in excess of $100,000, because, as he puts it, he's "peaked out in dp." According to further testimony, he's done a lot of job-hopping in the last ten years, holding five different jobs, but would require a nearly 30 percent increase and stock options to convince him to jump again.

Figures for 1980 from Robert Half, Inc., a financial-executive and data-processing recruiting agency with 70 branches, agree in the main with those from the *Computer Decisions* survey. According to the Half organization, which is headquartered in New York City, the average salary for directors of data processing last year was about $32,500. (That's for small, medium, and large installations taken together.) Salaries, however, vary according to state and region, asserts the Half organization: For instance, Vermont salaries run 6 percent less than the national average; Florida salaries, 9 percent less; Illinois salaries, 3 percent more; and California salaries, 5 percent more.

Striving for better pay

No one could fault the respondents for lack of ambition: Nearly one-fourth of them hope to achieve a peak income of more than $100,000. One of them is an army captain at Fort Knox, now earning between $25,000 and $30,000 as a management information systems officer. And perhaps he'll make a salary of that magnitude in civilian

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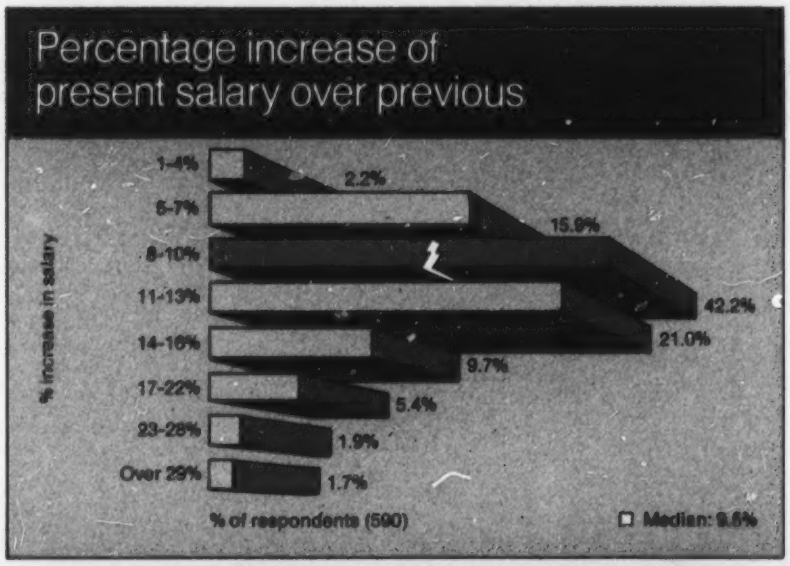
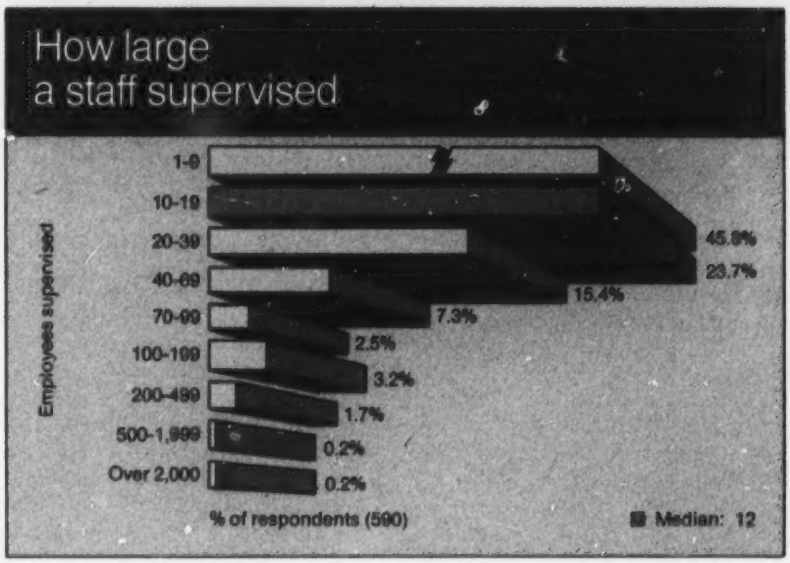
life, say, for he comments, "I'll be better prepared for general management than my peers, because of my background in MIS."

However, the typical respondent is more cautious, hoping for a top salary of about $63,000. The person seeking between $60,000 and $70,000 is one of ten in the group as a whole, whereas one in five of those answering the question desire between $50,000 and $60,000. At the higher end, one in eight looks for between $70,000 and $80,000; at the lower end, one in seven hopes for $40,000 to $50,000.

And there are clues in the survey results as to how MIS/dp managers get increases in pay and whether they have to move to get them. In short, the typical person responding got a 9½ percent hike in salary the last time around; about two of five managers got between 8 and 10 percent. Roughly one person in five received 11 to 13 percent boosts, while about one in six got less, or 5 to 7 percent. Of the 590 managers answering the question on last increase, practically one in five did quite well indeed, obtaining 14 percent to more than 29 percent more than they had been paid before.

As for where the raises can be obtained—with old employer or new—the evidence overwhelmingly favors staying put. Nearly 90 percent of the managers in the survey got their increases from the organization they're still working for. And 80 percent received that money in the same position they have at present. In addition, more than a fourth of the respondents have been in no more than two organizations during the last decade: Two is the median figure, so that two organizations is the typical experience for 591 managers answering on this point. An even larger group, a third of all managers, have stayed with the same organization for ten years. Another third have worked for three or four employers, but only a handful declare having had five or more. The record for this group of respondents is seven different shops in a decade!





Though appearing to be rather well dug in, survey respondents have their eyes on the main chance, in case something attractive comes along. (For expert advice see the Your Career column, "When it's time for a job change," on page 166.) What would they need to propel them into another organization, then? Typically they want almost 22 percent more money than they're getting now; those votes for 20 to 22 percent more represent between a fourth and a third of the managers. One in five respondents wants 23 to 25 percent hikes in compensation, whereas another one in five would require a boost of 29 percent or more from a prospective employer to change allegiance.

However, that's only part of the story on willingness to move. Respondents would seek other benefits and incentives as well before switching, benefits that cover a broad range of desires. The most popular specific items, in order of mention in an open-ended survey

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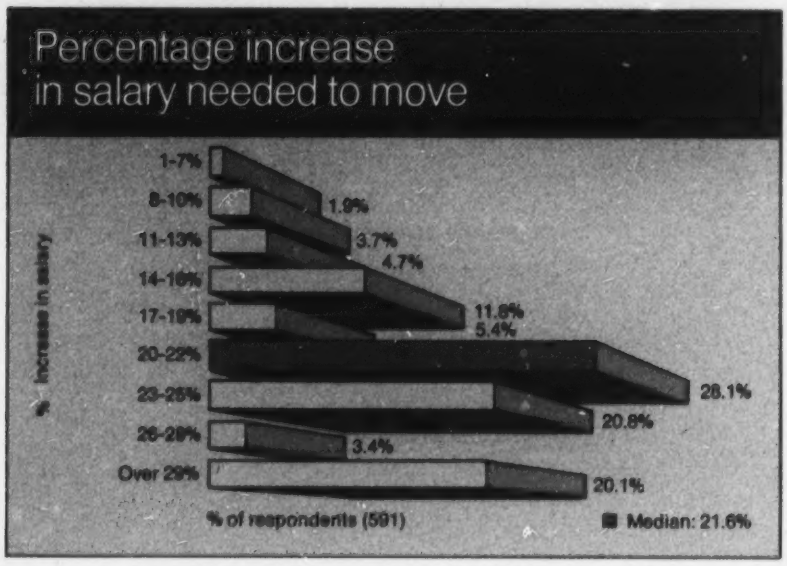

question, are profit sharing (mentioned by 14.6 percent), retirement benefits (13.6 percent), career-growth opportunities (13.0 percent), different location (12.5 percent), bonus (11.6 percent), health-plan benefits (11.6 percent), stock options (11.5 percent), company-supplied car (9.5 percent), more vacation (8.0 percent), reimbursement for relocation expenses (6.8 percent), and dental-plan benefits (6.5 percent).

Would those surveyed like to move from MIS/dp management into general management to enhance their careers? A substantial number —38.2 percent—voice just that wish, and they give their reasons. Opportunity for advancement tops the list, with nearly two out of five mentioning it in response to an open-ended question. Roughly one in seven seeks challenge; about one in seven, larger salary; and about one in seven, better use of skills. In addition, about one in eight wants greater power, and about one in eight, greater responsibility.

"I'm a manager first," explains a New York City man, in justifying his ambition to move into general management. An information-systems manager in Minnesota declares for "broader opportunities and challenge." "To more fully apply the skills and disciplines learned in dp" is the reason offered by a Tucson edp systems and programming manager. And a practical Texan in MIS votes no, but adds, "Depends on the size of the company."

But while awaiting greater opportunities, MIS/dp managers continue to deal with everyday problems that test their mettle. How they rate certain of those challenges is the subject of another part of the *Computer Decisions* survey. The respondents were asked to rate their concerns on a scale of 0 (no challenge) to 10 (great challenge); the median figures for three—budgeting, planning capacity increments, finding reliable vendors—fell roughly halfway on the scale. For practical purposes, the managers respond that they're moderately concerned about these matters.

On the other hand, though, they reveal more worry over procuring and maintaining staff, running efficient shops, and dealing with end-users. Median ratings for all three lie at 8 on the 0-to-10 scale, indicating substantial concern about these responsibilities. It should be noted, nonetheless, that responses vary a great deal from manager to manager, indicating that conditions in dp departments are anything but uniform.

By way of illustration, an information-systems manager in a St. Louis company seems to have his hands full: He rates running an efficient shop, budgeting, and planning capacity increments at 10 each (great challenge) and procuring and maintaining staff and dealing with end-users at 8 each. A dp manager in California state government assigns a value of 10 to efficiency, staffing, and capacity planning and a value of 5 to budgeting and end-user dealings. A Massachusetts dp manager in a manufacturing/processing concern rates finding vendors and dealing with end-users at 5 and all others below that figure.

Most of those responding to the survey are indeed MIS/dp managers. More than 50 percent bear the title of manager of data processing, systems, operations, information systems, or management information systems. Almost 20 percent more are called directors, while another 10 percent are supervisors, chiefs, or vice presidents. The remainder have widely varying titles.

Are the 602 respondents at the top of the heap? Just under 55 percent indicate that they're the highest-ranking dp or information-handling executives in their respective organizations. The other respondents—261 of them—revealed whom they report to: Thirty-one percent report to directors of dp, operations, MIS, or the like; and 16.5 percent report to managers. Almost 20 percent are under vice presidents and 2.7 percent get their instructions directly from presidents. In the traditional mode, 4.6 percent report to controllers; almost 10 percent of those not in the highest positions say they deal with group or division managers or directors.

Typically, a survey respondent supervises 12 employees; that's the median. A Chicago dp and systems manager in an electrical manufacturing company with a sales volume of between $25 and $50 million reports that he oversees 10 to 19. His greatest challenge, he indicates, is procuring and maintaining staff. For solving that problem and others, he's

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paid between $35,000 and $40,000.

However, about 45 percent of the respondents have the services of one to nine employees, as does a corporate director of MIS in a Midwestern manufacturing-processing company. He reports that staffing is a large concern, running an efficient shop and budgeting are less onerous. (His 1981 MIS/dp budget runs between $300,000 and $400,000.) He's doing pretty well, earning between $35,000 and $40,000 in a company grossing between $100 million and $500 million.

On the other hand, about 15 percent of managers responding supervise 20 to 39 employees, and nearly 10 percent more are in charge of 40 to 99. Stated another way, only 1 manager in 20 has 100 or more subordinates.

What kind of organizations do they work for, these MIS/dp managers? The greatest number of respondents, about 30 percent, are in manufacturing or processing companies. Government employs 11.8 percent, and the wholesale and retail trade just slightly less. One respondent in 10 is in finance, while one in 12 is employed in a company providing dp services. (More data on how the kind of organization affects salaries will appear later in this series of articles. Figures from the previous *Computer Decisions* survey showed that salaries varied widely within almost all categories.)

Of the two-thirds who manage MIS/dp operations for profit-making organizations, the largest group, 22.8 percent, are in the sales-volume category of $100 million up to $500 million. But the typical respondent works for a company that generates $75 million in revenues. And, at the far ends of the sales spectrum, a little more than 10 percent of respondents are in organizations selling under $5 million in goods and services, and a substantial 13.4 percent are in those companies with revenues that exceed $1 billion.

Clearly, the portraits of MIS/dp managers or directors limned by survey results are revealing. They show technically oriented managers who are rather well compensated in rapidly expanding information-handling functions. Further, whatever the managers get in pay and perks, their expectations are great—and not without justification. (Remember, one in four hope for $100,000 or more a year.)

Your expectations as to career and compensation should be high, too. And you can fuel those expectations with more findings from the *Computer Decisions* survey of MIS/dp managers in coming issues. □

What were your chances of getting a survey questionnaire?

If you were receiving this magazine last fall and if you were working as an MIS/dp manager—or had a similar title—the odds were about one in ten that you'd take part in this salary and status survey. (MIS/dp managers constitute about 45 percent of the total readership at any time.) And every MIS/dp manager-reader stood an equal chance of getting a form to fill out, because the choices were made by a computer on a random basis.

Five thousand questionnaires were mailed in late October 1980 to MIS/dp managers on the *Computer Decisions* circulation list. (Top corporate executives, financial administrators, and engineering managers were excluded.) Returns—602 altogether, for a healthy response rate of 12 percent—arrived in November and early December. Data were tabulated through the Research Department of Hayden Publishing Co., publisher of the magazine.

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COMPUTER DECISIONS

THE MANAGEM G

APRIL 1981

Taking the risk out of choosing and using consultants

Improving communications ■ Update on data entry ■ Linking offices
User manuals ■ Salary/status survey

COMPUTER DECISIONS

THE MANAGEMENT MAGAZINE OF COMPUTING

APRIL 1981

Volume 13 Number 4

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Advice on the best way to select consultants and get the most out of the ones you choose.

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100 Easy efficient ways to link offices / John Seaman *If you have many nearby computer and peripheral sites, you need a local computer network.*

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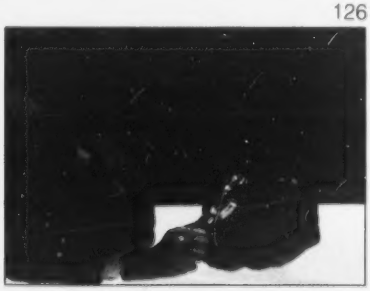

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MIS/dp managers' pay: Why it varies. what they want

Here readers report on how they're doing financially and professionally. Compare their achievements with yours.

by David Whieldon

Does the grass—or do the greenbacks—look greener beyond the fence around your organization? Have you ever peeked over for a better look? And have you then thought about climbing over to enjoy what appears to be better prospects on the other side?

You've probably had just such urges to look around, by way of improving yourself, and perhaps, to chuck it all where you work and go on to another, more rewarding situation. Indeed, you may have talked to recruiters for another organization, or actually picked up and made a move.

At such times, there are plenty of questions that occur to you. Why do you and your MIS/dp counterparts stay or go? How well rewarded have you been so far? When do you decide to improve yourself where you are? Should you move to a larger, more challenging, more successful organization with a heftier MIS/dp budget? What could you demand to made such a move? What would you like to earn eventually, at the peak of your career?

These are some of the questions addressed by more than 600 reader-managers who responded to the *Computer Decisions* salary-status survey in late 1980. In this third installment of a series, the editors of this magazine summarize how MIS/dp managers

and executives are being compensated and how they hope to fare in the future.

Which factors affect your salary and the salaries of your counterparts in other organizations? They vary from one place to another, of course, but this magazine's survey revealed some of the principal influences on salaries. Certainly there's a relationship between salaries and budgets. For instance, managers earning between $15,000 and $25,000, taken together, report a median MIS/dp budget of $187,500. However, those with compensation of between $30,000 and $35,000 report a median budget of $685,715. Managers earning between $40,000 and $50,000 have a median $2,807,693 budget. Thus, salaries advance apace with budgets. The median budget figure for all 515 respondents, incidentally, is $740,000. Slightly more than half those answering the questions work with MIS/dp budgets of $500,001 to $10 million.

A clergyman-dp manager on the East Coast enjoys some of the treasures of this world while anticipating the rewards of the next. Indicating compensation of between $35,000 and $40,000, he manages a budget of between $300,000 and $400,000. And he appears well entrenched, requiring an increase of 23 to 25 percent to move, plus a dental plan.

As the previous year's survey results showed, there's a positive correlation between salary and number of employees supervised. In 1980, the typical manager supervising 1 to 9 employees was earning between $25,000 and $30,000. By the same token, the manager with 10 to 19 employees had a salary between $30,000 and $35,000; the typical supervisor with 20 to 60 subordinates was paid between $35,000 and $40,000.

A woman, whose title is manager of systems for a broadcaster, oversees 1 to 9 employees and has an income that falls in the middle bracket of the survey range. With her latest increase in the neighborhood of 5 to 7 percent, she'd move for 14 to 16 percent more than her present salary. Her ambition for peak income is modest, perhaps reflecting the realities of the workplace for her: between $40,000 and $50,000, one survey pay bracket higher than the one she's in presently.

Employees provide challenges —or perhaps what blunter MIS/dp managers might describe as headaches! For example, in answer to questions, respondents as a whole rate the challenge of procuring and maintaining staff at almost 7 on a scale of 0 to 10 (0 means "No challenge" and 10, "Great challenge".) Thus, more than half the 535 answering find considerable challenge in staffing. And it makes little difference how many employees the managers watch over: those with 1 to 9 persons typically feel about the same as those with a hundred or more.

Surveyed managers and executives view the challenge of running an efficient shop in much the same light. No matter how many employees are subordinate to them, two-thirds of the managers rate this responsibility at 7 to 10 on a scale of 10. In short, they're saying, "This is one of our major challenges." (Dealing with end-users was a similarly large concern with respondents.)

You may have surmised that the kind of organization you work in affects how much you make. And you'd be quite right, according to survey findings. On the other hand, if you've assumed that your title is important as well, the results contradict you.

First, some kinds of organizations seem to pay MIS/dp managers better than others. The typical manager—the one whose salary is the median—in the business of providing dp services is at the top of the heap, with a median salary of $34,616. Just a couple of thousand dollars lower is the typical manager in manufacturing-processing; the manager in finance is at a level only a few hundred dollars less. The ranking from there downward goes like this: government, wholesale-retail trade, and education. In education, the typical manager earns $27,814.

When you consider profit-making organizations, as measured by their sales volumes, then MIS/dp managers and executives earn the most if they're in the largest companies. Respondents in companies with annual sales between $5 million and $50 million report, for instance, that they're typically paid between $25,000 and $30,000. In companies selling more than $1 billion in goods and services, the

(Continued)

Salary Survey

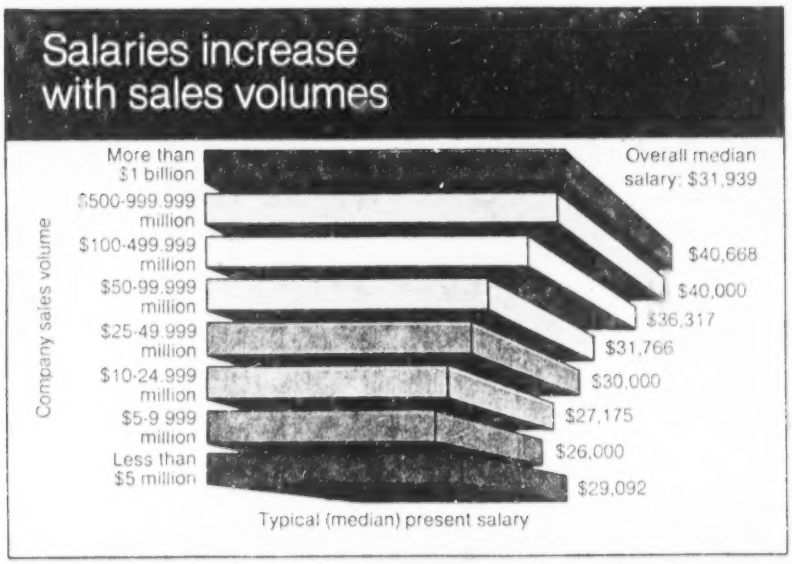
(Continued from page 143)

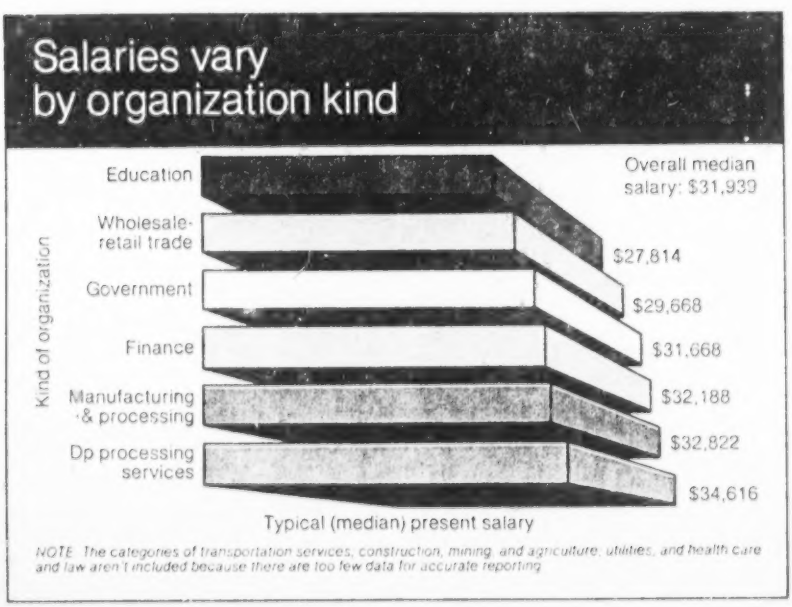
median salary is $40,668.

One small company in the Midwest pays its assistant treasurer in charge of dp relatively little, between $15,000 and $25,000. The company's sales volume falls in the range of $5 million to $10 million, and the dp budget is $70,000 to $100,000.

And does it make a difference if you're the top dp or information-handling executive in your organization? No, say the readers who responded in the survey. In fact, the person who's not the top executive typically is paid $32,032, whereas the person who heads up operations gets almost the identical amount.

Location too, plays a role in salary levels. That seems to be the case with two managers in small Southeastern cities. Both supervise one to nine people, and one declares an MIS/dp budget of between $150,000 and $200,000. (The other left out the answer.) Their pay runs between $15,000 and $20,000 each, well below the median salary of almost $32,000.





NOTE: The categories of transportation services, construction, mining, and agriculture, utilities, and health care and law aren't included because there are too few data for accurate reporting.

Recent increases, job-hopping

As pointed out in the previous article, in the March issue, the reporting managers typically enjoyed increases of 9.5 percent in the immediate past. Moreover, 82 percent of 590 respondents achieved a raise of 8 percent or better.

Naturally, the experiences are mixed, for about half the managers got only 1 to 9 percent—and there are clues as to why some fare better than others. For instance, there's a slight tendency for managers earning large amounts to get large percentage increases. In addition, managers with large budgets do better in terms of percentage. So the lesson seems to be that those already doing well do better than average when increases are handed out.

Now an important and often disturbing question: Does job-hopping pay off in better compensation than staying put? Or, stated another way, will you, if you're sitting tight, wind up sitting pretty?

A year ago, figures from the 1979 survey showed that those staying in the same organization over the previous ten years averaged about $3,000 more in salary than those holding three or more positions in the same period. (The range of salaries was lower for those switching jobs, too.)

Today, according to the most recent survey, the stand-patters are still doing better than the managers who have moved once or twice in the last decade. But the difference in salaries runs to only about $1,900 this time around for those staying in one organization as opposed to those working in three. Nonetheless, there appears to be merit in building reputation in one shop. For the record, the median in the 1980 survey for all respondents is $31,939; for those staying put, $33,262; and for those reporting from the third organization, $31,380. (Continued)

Salary Survey

(Continued from page 144)

A director of information systems in the aircraft industry has defied the general precept that salary increases stem from staying put. Though he got his last increase in the same organization where he works now and in the same position, too, he's been with three different organizations in the last ten years. And he's doing all right: His salary is between $60,000 and $70,000 and the company budget for MIS/dp is between $10 million and $20 million. (He supervises more than 500 employees.)

And, needless to say, there are those who have no choice but to serve different organizations: One of them is an Army captain, presently an MIS director, who's been in five military posts in the past decade!

Closer to the norm however, is the computer services director for an Eastern freight carrier; he's been with the same company for at least a decade. Currently, his income is more than $80,000 and his last increase was more than 11 percent. He reports that he'd need between 26 and 28 percent more money, plus "retirement protection," to move. Like the aircraft industry executive, he is responsible for an MIS/dp budget of between $10 million and $20 million.

To move or not to move

"Money alone sets all the world in motion," expounded maxim-writer Publilius Syrus 2,000 years ago. He might have been talking about managers today, for all that. Money moves MIS/dp executives to advance within their own organizations, and it moves them to move out as well. What's required, then, to impel survey respondents to desert their present employers? One hint comes from answers to a question on the percentage increase in salary the managers would want for a move: As reported previously, the typical respondent would ask for nearly 22 percent more than the present salary, plus benefits and incentives.

And if you examine the data, they show that managers in various kinds of organizations are rather in agreement: They typically would like 20 to 23 percent more to move. (Managers in health care and law and in government are on the low side of that range.) As for differences in salary, managers in the upper salary brackets tend slightly to wanting larger percentages to jump ship. So, while those in the $25,000 to $30,000 income category would typically settle for 11 to 13 percent more, respondents in the $35,000 to $40,000 category say they'd insist on an increase of more than 29 percent.

A Marylander, director of systems applications in government and supervising 1 to 9 employees, earns more than $40,000 a year. He'd move, he says, for a salary boost of 30 percent or more, provided he'd also have "participation in business decisions" and "profit-sharing."

> Almost one-fourth of respondents long to earn $100,000 or more, and 39 percent want to get into general management.

"[Better] location, tax-free perks, car, club, etc." are the desires of a man who directs dp for a Midwestern university—and who couldn't be moved for less than a 30 percent increase in pay. He now earns between $40,000 and $50,000 annually.

A Michigan man would want more money, too. But this chilled dp manager, in addition, wants the "Sun Belt."

Budget data from the survey

Another aspect of present "working conditions" is that of budget available in part or whole to the MIS/dp manager. Needless to say, budgets vary widely, and those MIS/dp budgets also vary according to several factors.

Certain organizations, as you might expect, outspend others—and managers reporting in the *Computer Decisions* survey tell how. At the top of the heap are financial organizations, which typically operate with budgets between $1 million and $2 million. Next down the line are government organizations, with budgets on the high side of $700,000 to $1 million, while manufacturing-processing companies tend to the low side of that same bracket. For dp service companies, the budgets run between $500,000 and $700,000, and health-care-legal organizations typically spend about half a million dollars yearly. For education, the reported budget figures are between $400,000 and $500,000, and in wholesale-retail trade, between $300,000 and $400,000 for typical users. (The median budget in the survey runs about $750,000.)

It's hardly startling that the survey data indicate a positive correlation between MIS/dp budget and number of employees supervised. Furthermore, the surveyed managers and executives don't seem to regard budgeting to be as formidable as other tasks they face. On average, they rate budgeting halfway along the 0-to-10 scale, with 0 representing "No challenge" and 10 as "Great challenge." Indeed, there's no clear pattern to indicate that managers with big budgets are any more dismayed collectively than those with smaller ones.

Looking toward future pay

Reader-respondents are doing rather well on the whole. But beyond that, they're optimistic about the future: As might be expected, they're hoping to earn more in the years to come. In every salary bracket, managers are saying they want to move up in compensation. And the more they earn now, the more they desire as peak income during their careers. Typically, for example, the managers earning between $25,000 and $30,000 hope for $50,000 to $60,000. A bit further up the salary scale, the respondents now getting between $35,000 and $40,000 want to make $70,000 to $80,000, or about double what they currently receive.

(Continued on page 148)

Salary Survey

(Continued from page 146)

Apparently the figure of $100,000 has great appeal for ambitious managers, because almost one-fourth of all those reporting long to earn that amount or more. And the typical manager who expresses that desire is now getting a salary of $37,500; thus he or she wants to enhance that salary by 2.5 times. Maybe it's only a flight of fancy or wishful thinking for many, because the sobering fact is that only one percent of all respondents in this survey are getting more than $80,000 annually! (That could change, of course, as managers take on more MIS/dp responsibilities or move into general management.)

Indeed, survey data indicate that certain MIS/dp responsibilities are growing in importance. In measuring their involvement with office automation, half the reader-respondents indicate that they were involved in it in 1979, but nearly three-fourths say they'll be involved by the end of 1980. Obviously, OA is a subject of great concern, while interest in voice-phone communications and data communications has leveled off, both showing only very modest increases in manager involvement. But managers are involved and have been for some time: Approximately one respondent in three is dealing with voice and phone this year, and about six out of seven with data-comm, even though these figures were much the same in the two previous years.

Graduate from dp management?

The optimism of the better-paid is conspicuous, too, when respondents are asked about their desire to get into general management. The result is that a substantial 39 percent of all those responding say yes. Furthermore, the proportions are even greater in the higher salary brackets: By way of example, 43 percent of managers earning between $40,000 and $50,000 want to rise into general management, and so do 50 percent of those between $35,000 and $40,000 now.

Seeming to sense that general management offers more scope than information management, managers hoping for high incomes are more positively inclined to moving out of MIS/dp. In fact, those answering yes to the general-management question are typically hoping for a substantial $20,000 more in peak incomes than the nay-sayers. (The median peak figure for those wanting general management is $77,189.)

Is money the reason for moving into general management from information management? Well, yes and no. "That's where the top dollars are—senior management," insists the vice president of a Florida thrift institution. He'd like to earn between $60,000 and $70,000 yearly by the end of his career, he says—this is a considerable jump from the $15,000 to $25,000 he's earning now.

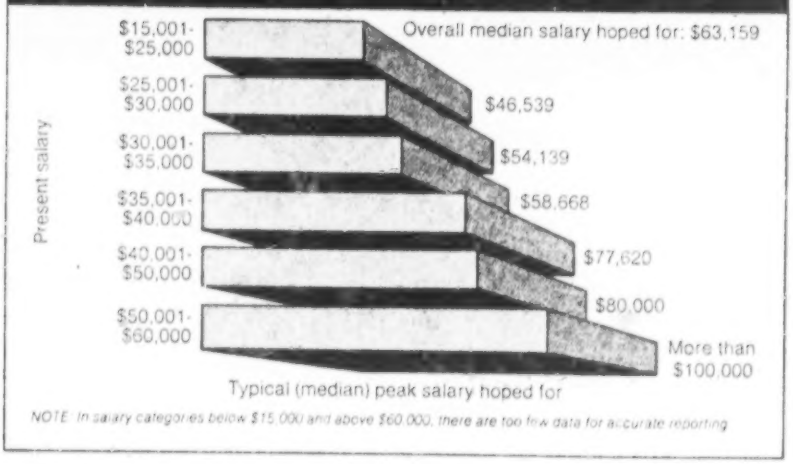
A perfectly sound reason for climbing the management ladder is given by a Midwestern systems-procedures manager: "Have B.S. in accounting and M.B.A." A South Dakotan in government would like to have "greater influence on salaries paid to my employees" and complains that "dp is located too low in the organization." A computer-planning supervisor in Oregon reports that he requires "knowledge growth, which means new areas of responsibility."

From Massachusetts, a corporate manager of dp, now handling a budget of between $500,000 and $700,000 for a manufacturer, writes that he wants "the expanded scope of responsibility and personal-experience growth" that goes with moving into general management. However, he pitches his expectation for peak career salary at a modest level: $40,000 to $50,000. His compensation now is between $30,000 and $35,000.

Opportunities abound

There's currently more room at the top than in middle management. That's one theme of a report from the Association of Executive Recruiting Consultants, Inc., New York, City. The 62 member firms, recruiters from various parts of the nation, got 25.5 percent more assignments to search for general-management executives to fill positions paying $100,000 or more each in 1980 than in 1979. And assignments for positions in the range of $65,000 to $99,999 increased 21 percent at the same time. In contrast, though, the requests for middle-management positions—that is, those paying less than $45,000—declined in 1980;

The more managers earn, the more they hope for



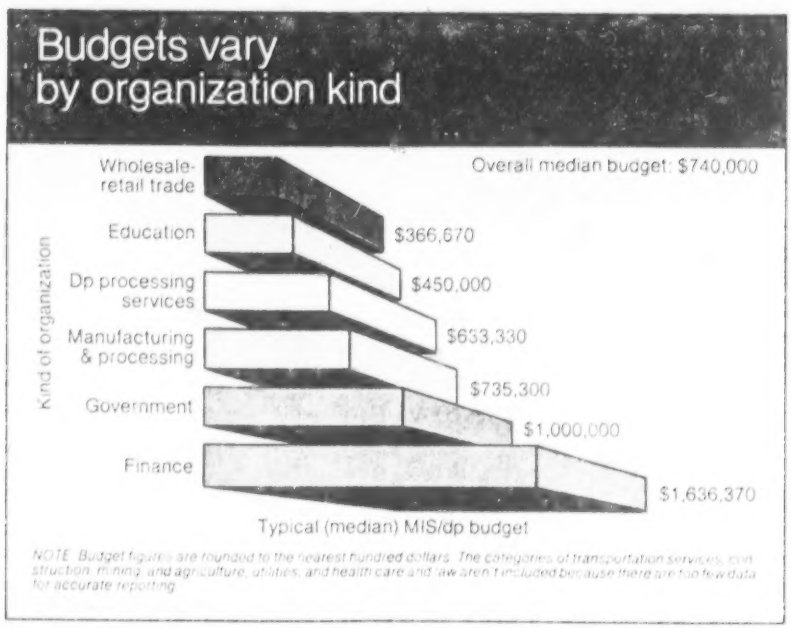
NOTE: In salary categories below $15,000 and above $60,000, there are too few data for accurate reporting.

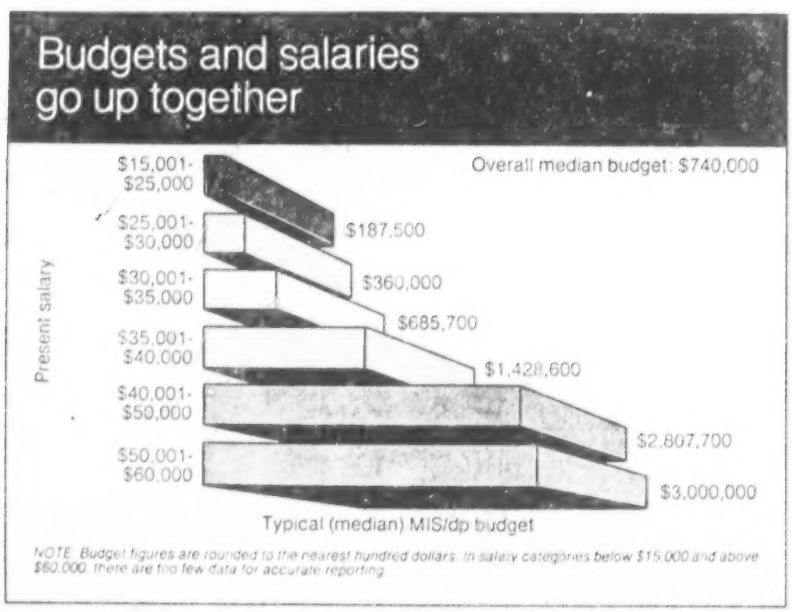
(Continued from page 148)

AERC explains that companies are probably using methods other than hiring executive-search firms to find candidates for such jobs.

Now it's time for a summing up. In this article and the previous ones, you've been able to compare your compensation, status, and expectations with hundreds of MIS/dp managers who read this magazine. This is your opportunity to size up your information career, whatever your age, and do a better job of planning where you want to go.

"Setting specific, meaningful goals is a fundamental requirement for success," counseled Harry Pritchett, management and executive-training expert (in *Computer Decisions*, January 1981, page 140). "Without clear goals, random activity to meet immediate needs will consume the irreplaceable resource of time." For you, establishing goals could mean reassessing what's happened to you in your recent work situations and how well those experiences are building toward a better future. (See also "When it's time for a job change," March 1981, page 166.) Altogether, determining how well you're compensated—financially, intellectually, psychologically, professionally—could lead to important decisions on moving up or moving on. Those decisions could markedly alter the entire course of your MIS/dp career.


Budgets vary by organization kind
Overall median budget: $740,000
Kind of organization
Wholesale-retail trade
Education
Dp processing services
Manufacturing & processing
Government
Finance
$366,670
$450,000
$633,330
$735,300
$1,000,000
$1,636,370
Typical (median) MIS/dp budget
NOTE: Budget figures are rounded to the nearest hundred dollars. The categories of transportation services, construction, mining, and agriculture, utilities, and health care and welfare included because there are too few data for accurate reporting.



The readers who took part in the survey

Those responding to the salary-status questionnaire, from which survey results were derived, were readers of this magazine last October. That's when the questionnaires, 5,000 of them, were mailed at random to names on that portion of the circulation list embracing MIS/dp managers. (Top corporate executives, financial administrators, and engineering managers were not included.)

Tabulation of data from questionnaires returned in November and December showed a substantial 12 percent return involving 602 readers altogether. All MIS/dp manager-readers had an equal chance of receiving question forms, and approximately one in ten actually got one. The Research Department of Hayden Publishing Co., which publishes *Computer Decisions*, managed the tabulation of results.

Where managers go for guidance

If you've read this article on salaries and status—and especially if you read *Computer Decisions* regularly—then you're much like the average survey respondent who depends on the trade press for information on vendors, products, prices, and the like. Indeed, it's the highest-ranking source of intelligence, de-

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CIRCLE 69

Salary Survey

(Continued from page 150)

clare the survey respondents. (The median for trade press was 7 on a scale of 10; with 0 standing for "Don't use" and 10 for "Rely on greatly.") That translates roughly into a statement like this: "We use trade publications quite a bit to learn about the economics of the MIS/dp domain."

On the other hand, those returning questionnaires indicate that they pick the brains of other MIS/dp managers or executives to a lesser extent (median of 6) and use vendor representatives somewhat less (median of 5). Furthermore, respondents answer that they gain knowledge from trade shows relatively little (median of 3) and from consultants to an even lesser degree (median of 2). These last two responses may mean only that these resources are unavailable to many, however.

Coming: Gartner executive summary

So far, the editors of this magazine have published three reports on the 1980 salary-status survey (in the February, March and April 1981 issues). But there's more to come. The next installment will be an executive summary of results dealing with organization budgets for 1980 and 1981; vendors and their performances; cpus from IBM and other manufacturers; peripherals and minicomputers; ddp; capacity increases; and micro or desktop computers, including users' experiences.

This effort is being spearheaded by Gideon I. Gartner, president of the Gartner Group, Inc., a research, analysis, and consulting house in Greenwich, CT. Gartner, whose column "Following the Leaders" now appears regularly in *Computer Decisions*, is widely recognized as a leader himself in tracking development of dp hardware and projecting trends for the industry. He'll analyze what end-user readers like yourself have reported and what the data mean to MIS/dp managers *and* executives in the immediate future. It's must reading for anyone with responsibility for money and machines. □

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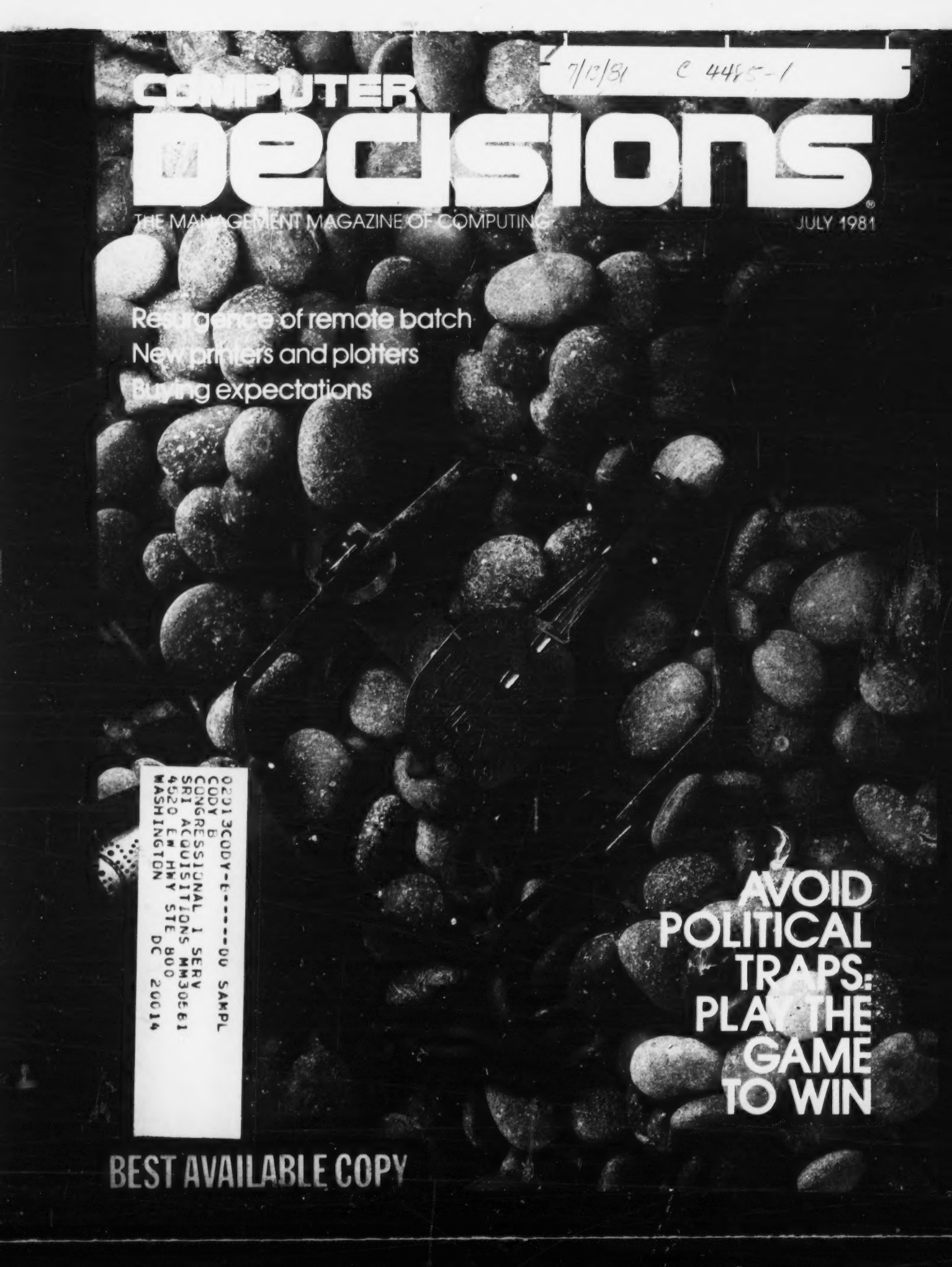
COMPUTER decisions

THE MANAGEMENT MAGAZINE OF COMPUTING

JULY 1981

Resurgence of remote batch
New printers and plotters
Buying expectations



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AVOID POLITICAL TRAPS: PLAY THE GAME TO WIN

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COMPUTER DECISIONS

THE MANAGEMENT MAGAZINE OF COMPUTING

JULY 1981

Volume 13 Number 7

Copies Printed: 124,195

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66 **Printers and plotters: More versatile than ever** / David Whieldon *They do more than they used to and they do it faster.*

108 **Successful office automation, Part II** / Josh Martin *Jumping the hurdles in office automation is no sweat—if you've trained hard in equipment selection, planning, and patience.*

126 **Hardware: What's going to sell? Who's going to buy?** / Gideon I. Gartner *A survey of MIS/dp managers shows a seemingly insatiable demand for more powerful hardware, and vendors are clamoring for their share of the action.*

134 **Avoid political traps: Play the game to win** / Martin Lasden *Politics isn't necessarily a dirty word, and it's definitely here to stay.*

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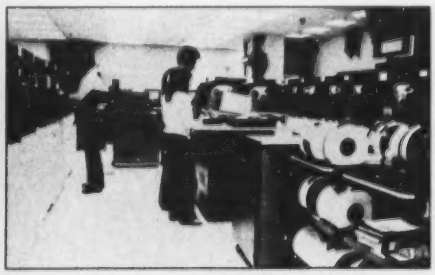

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COVER: Kosoff/Butensky Photography

Hardware: What's going to sell?

Who's going

Just as the MIS/dp "establishment" appears to be gaining control over "secret" minicomputers, its hegemony is threatened by an invasion of "secret" microcomputers. At the same time, the demand for mainframes remains strong.

These are just two of many intriguing insights gained from a survey of more than 600 readers, representing key executives and managers of U.S. MIS/dp installations. The survey was conducted in late 1980 by *Computer Decisions* with the assistance of the author. Respondents also gave their views on the purchase-versus-lease decision and the effects of capacity growth on budget trends.

If we combine some of the survey results with our own interpretations, we might conclude that:

- The decentralized and distributed computing trends, as

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to buy?

A survey of MIS/dp managers shows a seemingly insatiable demand for more powerful hardware, and vendors are clamoring for their share of the action.

by Gideon I. Gartner

measured by small-systems acceptance rates, continue unabated.

- MIS managers are extending their influence over the small systems and office information systems (OIS). The "systemization" of small-system and word-processing activity, much of which used to be heavily stand-alone, but which is now being integrated via communications facilities, is a boon for both dp executive career paths and for the growth of the computer industry.
- While minicomputers are falling into the province of dp managers, microcomputers are coming in at the department or functional level, much as minis used to. The growth of microcomputer acceptance within the large organization should be one of the

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(Continued from page 127)

more significant phenomena of the 1980's.

- The most significant phenomenon may be the aggregate growth rate in demand for information-related horsepower. There appears to have been an expansion in this rate, from about 30 percent just five years ago, to over 35 percent today. This contradicts normal expectations, considering the presumed inevitable maturity of the computer industry. But it appears to be happening nevertheless!

The credentials of the users who responded to the survey are impressive. Fifty-five percent were the top data-processing executives in their organizations; 81 percent were managers, directors, or vice presidents; and 64 percent reported to directors, vice presidents, group or division managers, or controllers. A more detailed profile of the respondents will be made available, together with the complete results of the survey, in a separately bound report to be made available shortly. Meanwhile, this article will summarize and interpret some of the output.

Small systems or minis?

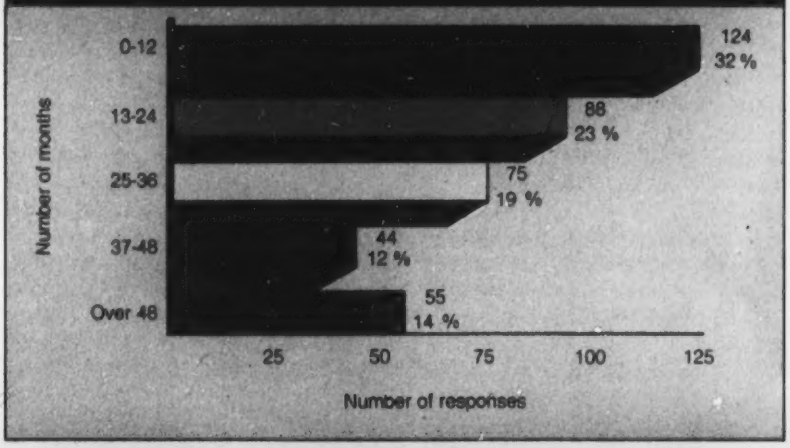
Users are continuing their love affair with non-IBM minicomputer offerings, while at the same time stepping up orders for small systems from IBM. This anomaly indicates that the market for small systems continues to expand rapidly, to the point where even IBM's substantially greater involvement at the low end is not hurting the non-IBM suppliers.

This would be a good time to acknowledge a bias that creeps into all questions regarding minis in this survey. If the respondents are data-center managers, then the minis directly under their control may be the only ones with which they are familiar. So IBM's growing credibility in this market should be acknowledged, but it should not be overstated.

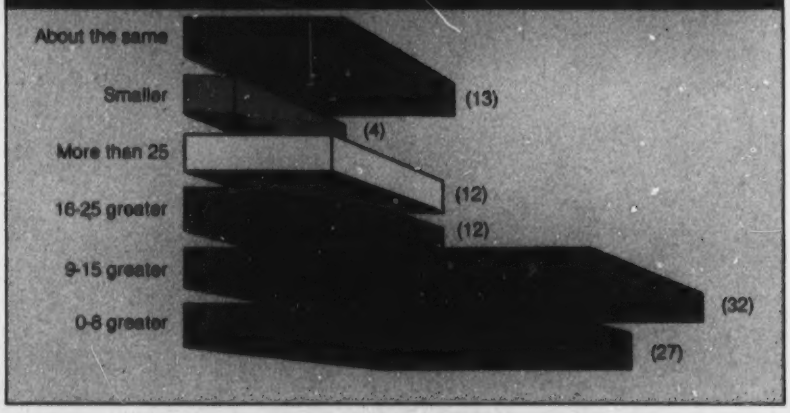
This is especially important since the same respondents, who will be installing more IBM than Digital Equipment small systems in 1981, retain the usual cynicism about IBM's efforts. Thus, in response to the question of whether users' enthusiasm for various offerings was weakening or getting stronger (weakest = 0, strongest = 10), use of non-IBM minis scored 6.4, while use of IBM small systems scored 4.2. (This enthusiasm index will be referred to in other contexts in this report.)

Recent experiences with IBM's System/38 and 8100 probably have dampened users' enthusiasm toward IBM somewhat. Performance results on the 8100, when users are in a

The more months left on leases for systems, the more likely the lease is to be terminated.



MIS/dp budgets keep on growing. This is a comparison of 1981 with 1980 budgets. The average increase is 10 percent (plus).



multifunction mode with the DPPX (Distributed Processing Programming Executive) operating system, remain disappointing. We expect IBM to shift resources into the DPCX (Distributed Processing Control Executive), where the 8100 may yet score strongly in offices.

Neither has the 4331 been a clear-cut small-system success; this is reflected in the higher number of 4341 orders and shipments, and in the higher proportion of 4331 orders in stand-alone intermediate installations (a machine in the 370/138 or 370/148 class), rather than in low-end distributed data-processing configurations.

Thus, recent introductions of low-end IBM cpus (such as the S/34, S/38, S/1, 5120, 8100 and 4331) have not prompted cancellation of plans to install additional non-IBM minicomputers. Users of minicomputers tend to be loyal to their current vendor. But despite the low enthusiasm for IBM's offerings, and the continued strong showing of non-IBM hardware, installation plans for 1981 show IBM as *the* top minicomputer vendor, 50 percent ahead of DEC (based, undoubtedly, on a strong advantage in small, commercial systems).

Other responses to survey questions show that a transition to distributed data processing is still an active issue in 53 percent of responding organizations. Reflecting the continuing impact that central data centers are exerting on minicomputer acquisitions (at least in the commercial area), a high percentage of application software was being developed by the central dp group (perhaps a biased result). The influence of the respondents on small systems showed a clear uptrend (see the graph on page 129).

Other responsibilities

Along these same lines, one survey question delved into the expansion of dp managers' responsibilities from MIS into office automation and communications. As the graph on page 132 shows, while half of responding dp managers had responsibilities last year in OIS, almost three-quarters will have such responsibilities next year; this nearly parallels the current situation in data-communications responsibilities.

These managers are still not at all impressed with IBM's offerings in OIS, with the enthusiasm rating at a low 3.7 (on a scale of 10). At a recent meeting sponsored by the Gartner Group, users were still exhibiting a wait-and-see attitude, indicating that IBM's recent announcements are still missing the target. We think users are having difficulty relating IBM's multiple offerings to one another and to any coherent product strategy.

Influence of MIS/dp managers on selection of minis.

(Percent of responses)

Low	Medium	High
14	29	57

The trend is:

(Number of responses)

	Low	Medium	High
Decreasing:	3	3	4
Same:	51	65	114
Increasing:	14	76	169

In collaborating on the *Computer Decisions* questionnaire, we assumed that microcomputers were destined to become a major force, penetrating business organizations with the same impact as minis did a decade earlier. The responses seem to justify the assumption. For instance, the question on the use of micros was one of only three (out of a total of nine) that elicited "enthusiasm" ratings over 5.

Software, maintenance, and price were the primary criteria in selecting vendors. The applications planned for micros being delivered in 1981 may illuminate the potential that micro vendors have for displacing decentralized minicomputers in the future. Apple, incidentally, was by far the most popular business micro.

As shown in the smaller graph on page 130, dp executives are actually checking off applications for micros that are either the province of minis (data communications, dp support, timesharing), or opportunities for minis (office systems).

We all know how minis penetrated large corporations without much more capability than is being offered by today's high-end micros. Weaned on home environments, where simple interfaces are a necessity, the micros are ready to invade big business.

Clients may question the validity of dp managers' perceptions of specific microcomputer applications, on the grounds that they just couldn't know; but they don't question the trend. One of the Gartner Group clients characterizes the use of micros in his company as being in the slide-rule category—tools people need in their day-to-day activities. The conflict will arise when the user realizes the micro's limits in features such as storage capacity. The vendors of micros see this happening, and will move "up market" (Apple will announce the models IV, V, VI, and so on) to stimulate applications in business.

According to a recent report by The Gartner Group, as a result of the microcomputer fallout, a dramatically expanding marketplace will have a progressively adverse effect on IBM's market position. In the past 20 years, the number of IBM competitors has mushroomed from only nine in 1952 to 3,000 in 1980. Ease of entry and profit potential, made possible by lower product prices and aggressive entrepreneurs, are the reasons for the success of non-IBM systems, the report says.

We hear all the same major objections to micros as we heard concerning minis in the late '60s: First among them is serviceability. But limitations in serviceability will not stop the micros. Companies are already stocking spare parts, if not spare

(Continued from page 128)

processors! The micro manufacturers are putting together their national account programs, and will sign up with national service companies. The analogy will probably evolve to the point where the mini vendors lose revenue to the micros.

Purchase vs. lease

With respect to minicomputers, the survey shows that 62 percent of those cited for installation in 1981 will be purchased, and 8 percent will be put on third-party lease (the rest are mostly IBM small systems). With respect to mainframes, 36 percent will be purchased, and 23 percent placed on third-party lease. The mainframe purchase expectation is somewhat below the reported installed purchase percentage of 47 percent. This is normal, considering that many users place their machines on rent or lease, purchasing after purchase-option credits build up.

The number of months left on lease is an important parameter from the point of view of user upgrade possibilities and vendor-replace potentials; the reported distribution is shown in the top graph on page 128. The vendor-replace potential still exists primarily on an intra-vendor rather than an inter-vendor basis, except for plug-compatibles. (One of our attitude questions showed the expected and very tepid 3.7 enthusiasm rating for willingness to consider conversion *between* vendors.) This survey was completed just prior to announcement of IBM's 3081. Of 420 who responded to a question on whether they would enter the order queue for a machine with 3081-type specs, 20 percent said yes and another 20 percent said maybe. Since perhaps 30 percent of the rest were not IBM users and another group was too small to consider a processor twice as powerful as the 3033, the response pointed to strong interest in the 3081, a result which has since been translated into strong orders for this big machine.

Another question probed the IBM 303X order situation, especially with respect to 1981 installation plans. Of 88 on-order machines reported, 76 percent fell into 1981, reflecting probable solidity of the 303X backlog. The number of on-order machines, compared with the number reported installed in a separate question, supports expectations for substantial 303X volume in 1981, despite the prospect of some cancellations due to the 3081.

Users should understand how important purchase has become to vendors such as IBM. In 1975, IBM data-processing sales of about $2.5 billion were 33 percent as much as rentals of about $7.8 billion. But in 1980, the gap narrowed: Dp sales of $6.9 billion were 70 percent as much as rentals of $10 billion. Thus, fluctuations in purchase volumes from year to year will have much greater impact on IBM's results than they would have in the past. So IBM must protect against such fluctuations, and try to induce customers to buy rather than lease. This customer control appears to be insufficient because of fluctuating interest rates, investment tax credits, and so forth. But, luckily for the mainframers, there is a continuing long-term trend toward purchase.

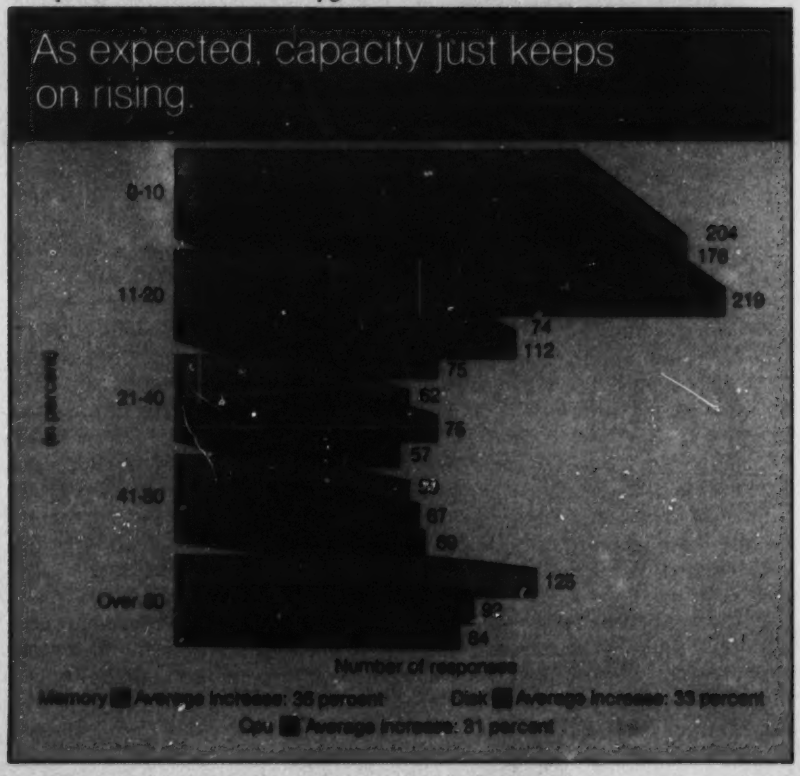
Budgets

Those surveyed were asked to indicate their "major challenges." In descending order of significance, these are:

- running an efficient shop

Most frequently planned applications for minis and micros in 1981.

	Minicomputers	Microcomputers
Education	1	11
Office systems	2	4
Business-dp standalone	3	3
Scientific/engineering	4	5
Data communications	5	6
Dp-support equipment	6	1
Timesharing	7	7



(Continued from page 130)

The responsibilities of MIS/dp managers are growing.

	Office Auto. (OIS)	Data Comm.	Voice Comm.
Involved last year:	51	80	30
Involved now:	57	84	31
Likely to be involved next year:	73	84	37
Percent increase in involvement next year vs. last year:	43	5	25

- dealing with end users
- procuring and maintaining staff
- planning capacity increments
- budgeting
- finding reliable vendors

Although budgeting was not rated as a relatively major management challenge to users, it is of great concern to the vendors. Of primary concern should be the low levels of computer hardware spending in the total spectrum. Regardless of user size range, budget appropriation is fairly consistent; only about 30 percent of the budget is spent on hardware, against 47 percent on staff. The mainframers need to accelerate their quest for techniques to "package systems analysts into hardware"; if they can recapture some of the "people" share of customer budgets, then they will grow smartly!

In terms of expansion of total budgets, the situation seems fairly healthy, considering that we are in a period of economic uncertainty, with 1981 budget expectations up an average of over 10 percent (see chart, page 128). Underlying this result is the unending demand for more raw capacity by the installation. The lower graph on page 128 shows estimated 1981 increases in main memory disk storage and processor horsepower.

It appears management in general is coming to terms with the continuing need for automation to improve productivity. Many are taking much stronger and more overt positions: Some feel that hardware cost is already so low relative to the labor required to perform equivalent functions that virtually any solution is acceptable, assuming two things: a decent user interface and an ability to manage the new automated activity. The result is a time series of capacity increments which may have averaged 25 percent in the early '70s, 30 percent in the later '70s, and 35 percent or more in the early '80s.

Vendor Perceptions

Users were asked to rate their primary vendors in terms of effectiveness in enhancing their product line; product reliability; competitive pricing; and responsiveness of sales, systems, and field engineering personnel. While the sample sizes citing certain vendors were somewhat limited, we think there is some validity in the general overview of user perceptions.

Not to our surprise, Hewlett-Packard led the list in "quality and reliability of products," with IBM second. Wang Laboratories was tops in "product line enhancement," with HP a close second. As a result, when the scores in these two critical factors were combined, HP led all other vendors, with Wang and IBM close behind in the "total" category. Digital Equipment was fourth.

In the evaluation of vendors on "priced competitively," Memorex led, with Wang just a shade behind. Not too surprisingly, IBM was at the bottom of the list.

There were many other areas of inquiry in the survey. Some additional highlights from the study:

- To a question regarding sources of "intelligence" information concerning future product announcements, expected pricing actions, and other such vital matters, respondents indicated they rarely used consultants, depended somewhat on their vendor representatives, but depended heavily on the trade press.
- To the question which gauged respondents' "enthusiasm" for various industry factors, (which we quoted above for small systems), other answers included:
  -use of independent software packages—high enthusiasm
  -use of non-IBM plug-compatible peripherals and mainframes—on average, indifference (a positive result for the PCMs)
  -use of outside timesharing vendors —low enthusiasm
- A question posed to IBM users addressed SNA trends. Of almost 300 users who responded to this, 37 percent replied that SNA was a major issue in their installation. Of these, 70 percent indicated that the transition to SNA (implying at least use of SDLC link protocol) was already under way. Of those who will implement SDLC in 1981 or 1982, the distribution was 60 percent in 1981, 40 percent in 1982.

Overall, the results of this survey mirror the tremendous vitality of the computer industry as a whole, as well as a keen interest in the burgeoning areas of small systems and OIS. Mini- and microcomputers, once on the periphery of the market, are bathing in the spotlight that formerly flooded the mainframes. And there is no end in sight to the demand for increasing computer power. Despite the uncertain course of the economy, the responses to our survey point to smooth sailing for the computer industry in the years to come.

Based on the results of this first expanded survey of *Computer Decisions* readers, we shall design an even more relevant questionnaire for the next survey, whose results will be presented in 1982. The detailed report on this survey, including the highly revealing vendor ratings, will be available in book form from the Marketing Department, *Computer Decisions*, 50 Essex St., Rochelle Park, NJ 07662. The pre-publication price is $395 for all orders received by August 15. After that date the price will be $495. □

NOTE

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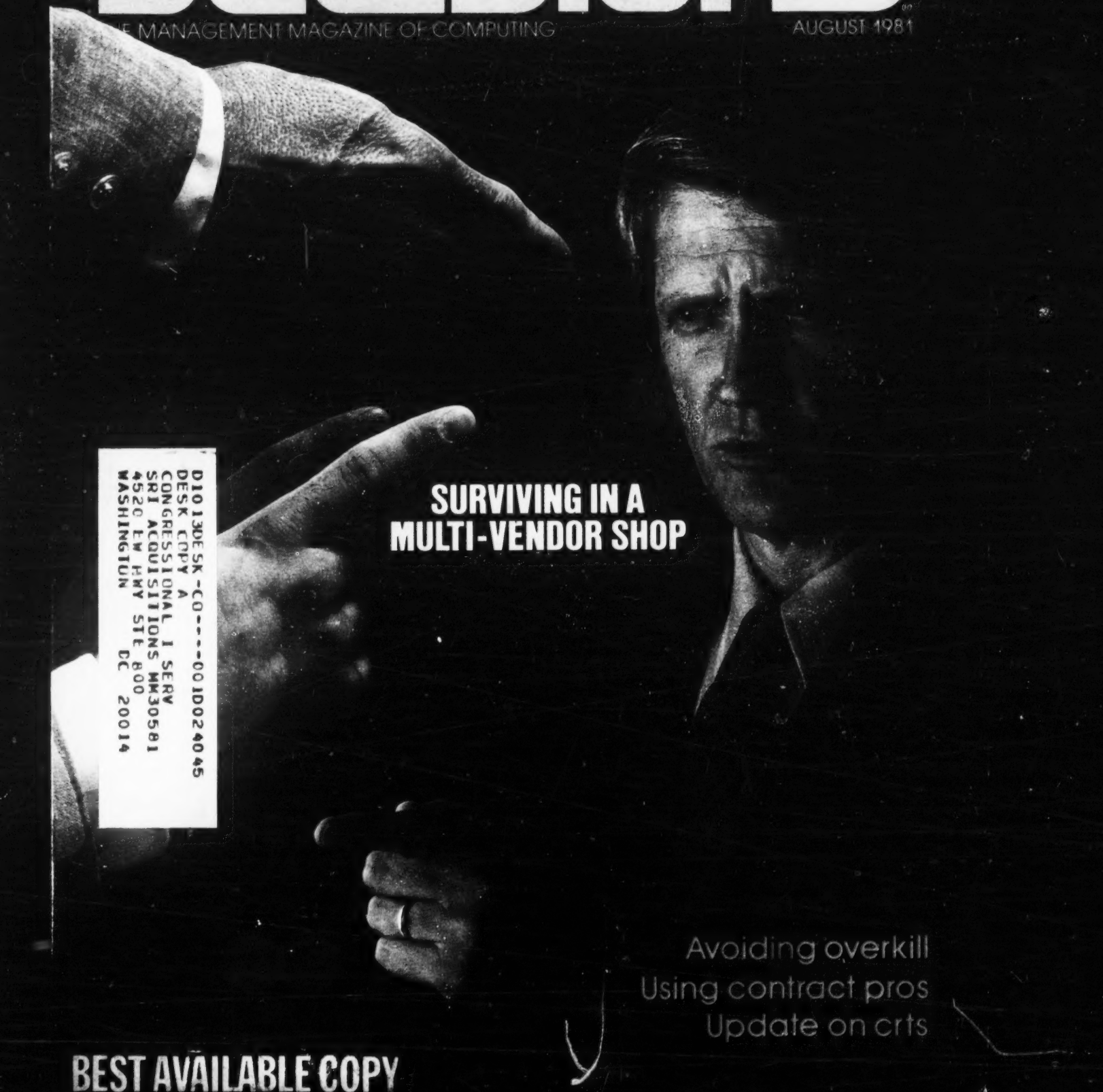
THE MANAGEMENT MAGAZINE OF COMPUTING

AUGUST 1981



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AUGUST 1981

Volume 13 Number 8

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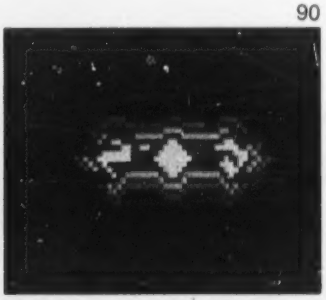

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COVER: Kosoff/Butensky Photography

customer's specific application protocol?

• Is the manufacturer capable of supporting the product in the field?

IBM or not, SNA is coming, Kar says. And switching over to SNA will demand adjustments—programs to be redone, personnel to be retrained. Trying to choose among a myriad of non-IBM products will not make that transition any easier. And there are the obvious risks. But, Kar maintains, those risks are outweighed by the potential benefits. "If you select a comparable product carefully," he says, "you can enjoy the benefits of SNA and the features and performance of non-IBM products as well."

Tracking inventory with confidence

The inventory operation at the Dan River, Inc., textile manufacturers in Danville, VA, was so poor that management couldn't be certain that proper working procedures were being followed. That's why Dan River installed the Source Record Punch data collection units from Standard Register Co. (Dayton, OH).

The company was having trouble keeping track of its greige-cloth (unfinished woven or knit fabric) inventory. The cloth was sent through an inspection and a finishing stage, and discrepancies were cropping up in the weights and lengths of the cloth as it was shipped and stored between stages. Inaccuracies due to the handwritten data-entry practices could have been part of the problem. Don Fleck, the director of management information services at Dan River, says that the company could not even be certain that inspection was taking place, nor that all the material that was inspected was making it to the finishing stage.

Now the Source Record Punch units, which have a base price of $3,650, collect data automatically. The data are stored on Zipcards, four-part forms that are machine- and human-readable. The four-part form allows each stage in the operation to keep records on all material that is being worked on, and it assists production control also. Fleck says that the operation now has "better control, improved reporting, tighter discipline, and greater accuracy."

Standard Register Co. can be contacted at P.O. Box 1167, Dayton, OH 45401, (513) 223-6181.

Financial controls needed

Data-processing managers fear auditors, largely because dp systems usually do not have enough financial controls to pass an audit. "Dp managers don't think about the financial controls," says Alan Brill, senior staff consultant at Yourdon, Inc., New York. "They think about the control of data."

The lack of good financial controls in a system can cause many problems, and an audit is just the start of them. An auditor may require adjustments to a system that, Brill says, "you do not have, and cannot efficiently implement." To eliminate the problems that arise out of auditing, preventive measures have to be taken. "You can't wait until something disastrous happens," Brill says. Financial controls must be built into a system, and so must be developed in the earliest planning stages.

There are many reasons why systems are under limited financial control. Managers generally believe effective systems are necessarily under good financial controls. That is not so, according to Brill; many effective systems have few financial controls. The problem is worse, Brill says, because "there are no penalties if your system is not controlled, and few rewards if it is." The incentive to create controlled systems comes when maintenance costs are considered. A problem detected in a functioning system can cost 1,000 times more to fix than if it were detected when the system was being planned.

"Be your own auditor," Brill says, "and you will build a controlled system. A controlled system is an auditable system." Yourdon, Inc., is offering courses that address financial controls in a dp system. The three-day "Internal Controls Workshop" is being offered in Los Angeles August 5 to 7, in New York August 26 to 28, and in San Francisco September 9 to 11. It costs $650. The five-day "Auditing Structured Analysis & Design Workshop" is being offered in San Francisco August 10 to 14, and in New York September 14 to 18. It costs $850. Yourdon is located at 1133 Ave. of the Americas, New York, NY 10036, (212) 730-2670.

Is ISS the third wave?

Are you one of the MIS/dp executives who feel threatened by the rise of DSS—decision-support systems?

Well, prepare your psyche for a

(Continued on page 19)

FOLLOWING THE LEADERS

Facing fax: An examination of the facsimile market

Six companies, separate entities with sometimes similar methods, control the general business facsimile systems market in the U.S. Those companies are (from largest to smallest in unit market share) Qwip, Xerox, Graphic Sciences, 3M, Rapicom, and Panafax. Product lines and marketing strategies initiated by these companies create trends in the fax industry. Xerox, the former leader, is expected to regain the number-one position this year.

Currently, all facsimile products can be placed in one of three groups, differentiated by the speed of the facsimile transmission. Group I includes low-speed fax products, which transmit a page of information in 4 or 6 minutes. Group II products transmit in 2 or 3 minutes, and Group III, high-speed, products transmit in under one minute.

Low-speed equipment originally dominated the fax market, but in the past few years advanced automation has made medium-speed equipment more widely available and less expensive. The result is an increased demand for medium-speed units. In the next few years, the demand should switch from medium- to high-speed units for the same reason. The technology for high-speed fax might have been available years ago, but there was no demand.

In the first place, the potential cost of high-speed fax was intimidating. Also, potential users of high-speed, high-volume fax equipment were largely unaware of its existence. Finally, users were discouraged by the lack of Group III standards, a problem that wasn't solved until the late 1970s.

These findings are included in "Facsimile Markets," a 191-page report that thoroughly examines all aspects of the facsimile industry from its inception to the present. The future of the industry is also appraised. The report was compiled by International Resource Development, Inc.

There are several advantages to high-speed fax equipment, besides superior speed. Higher speeds mean lower transmission costs. High-speed fax equipment uses the digital mode of operation, which will enable fax to be integrated with ASCII-code-based electronic message systems. Integrating fax with other capabilities is the key to fax's future. In fact, the report predicts that by the 1990s, stand-alone fax equipment will no longer exist.

John Cochran, president of Qwip, ("Qwip" is being replaced by "Exxon") realizes that the market for multifunction workstations is at least several years off, and until it is established, Qwip will not even enter the high-speed market, although it is currently the leader in the low- and medium-speed markets. Qwip is just one of Exxon's several information-based concerns, all of which were integrated into the Exxon Office Systems Co. earlier this year.

Such a move indicates a promising future for Qwip, particularly if the trend to multifunction workstations develops. The company's current product line is somewhat limited, so its success can be attributed to heavy advertising, fiercely competitive pricing, and the largest sales force (600 strong versus Xerox's 200) among faxmakers.

Xerox may not have the manpower to rival Qwip's sales force, but it is committed to a very aggressive sales campaign. Large-volume sales are discounted by as much as 20 percent off single-unit prices, and products are distributed through six different channels. Xerox has an advantage over Qwip because it features a more diverse product line; Qwip has only three desk-top models. Xerox has also been more adventurous and experimental with the fax market, but the report characterizes one experiment, the Telecopier 200, as "a mistake."

Xerox has recently got back on a strong fax path with the development of two units, one medium-speed and one high-speed. The medium-speed Telecopier 455 is expected to be released this month. The high-speed unit, the Telecopier 495, is expected to be released later this year.

Xerox is a tinkerer, experimenting with different products to see if something clicks, but Graphic Sciences is a bold innovator. From its formation in 1967 (it merged with Burroughs in 1973), it has built up a broad product line, "the success of which may be attributed to Dexnet

Projected sales through 1990 for intelligent copier/printers

	1981	1984	1987	1990
Unit shipments (000)	0.1	40	85	110
Value of shipments ($ million)	4	880	1,275	770
Average unit price	$40,000	$22,000	$15,000	$7,000
Percent with fax capabilities	30	40	60	80

—the concept of multi-speed fax compatibility," says the report.

Graphic Sciences has continued to develop products that are compatible with machines from Groups I, II, and III. The company has also distinguished itself by developing convenience features and systems capabilities for its products, expanding and redefining the role of fax.

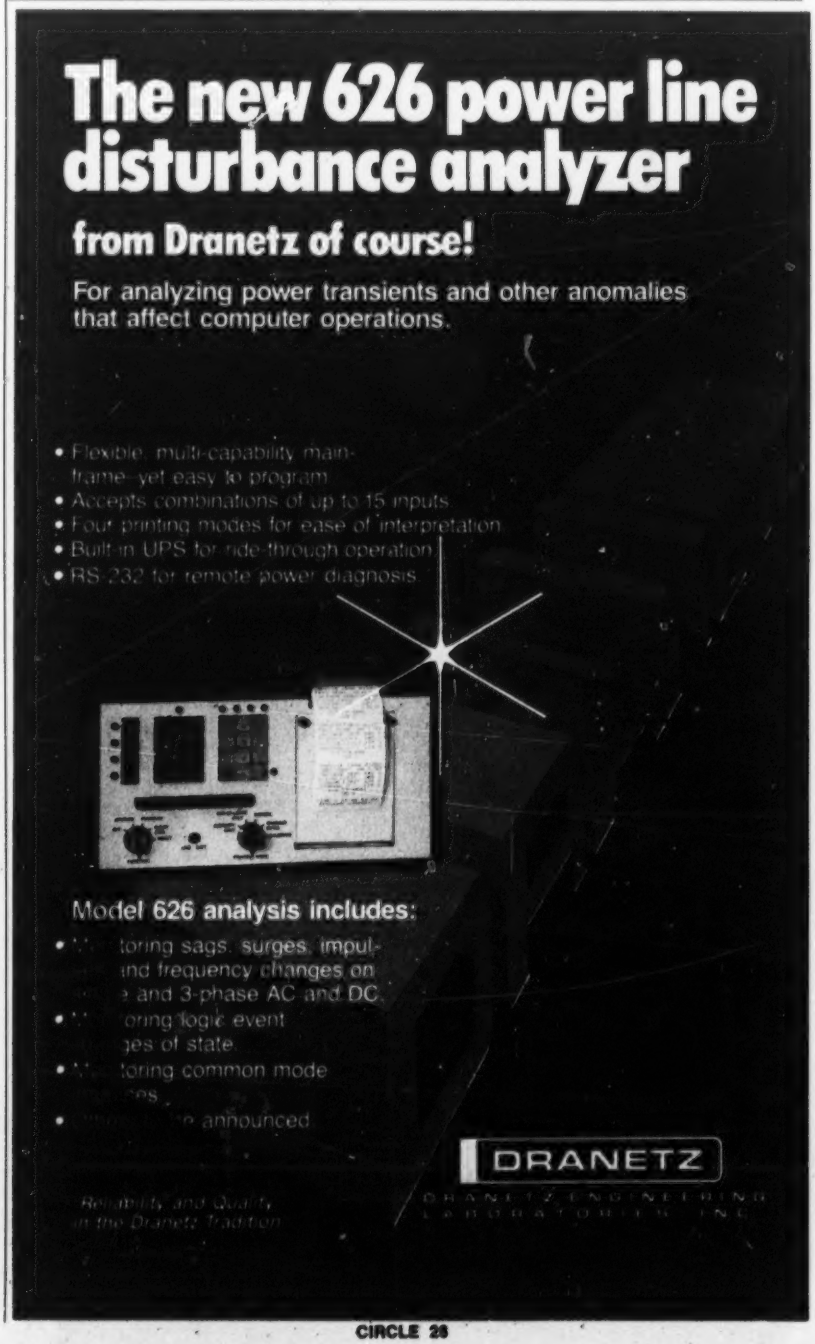
Minnesota Mining & Manufacturing Co. (3M) is riding high with its digital desk-top unit, the 9136. It is Group-III-compatible, and in the analog mode it is compatible with Group I and II machines. For 3M, simplicity brings greatness. Its modest product line leaves it "unencumbered," according to the report, and "well-positioned for the emerging market in message-switched facsimile applications."

You can't be first in everything, and Rapicom seems to be content with that philosophy, devoting itself exclusively to high-speed machinery. It was the first—and, for a while, the only—manufacturer of such equipment, but in the late '70s many competitors cropped up. Rapicom has the industry's broadest line of high-speed equipment.

The products of Panafax are more expensive than competitors' models. Its high-speed models are faster and more expensive than Rapicom's, although that difference is less pointed, considering that Panafax targets a higher-volume market. The company is more competitive in the medium-speed market. Its MV-1200 is considered by many to be the best medium-speed model on the market, although the report predicts that it may soon be outclassed by 3M's 9136.

Early this summer Panafax introduced the MV-3000 Transverter series, which combines a facsimile transceiver with an intelligent printer. The product is being geared to the electronic-mail market.

Fax industry leaders are working hard to develop innovative products, but it is clear that development and acceptance of multifunction workstations are several years off. A copy of the "Facsimile Markets" report is available for $985 from IRD, 30 High St., Norwalk, CT 06851, (203) 866-6914. □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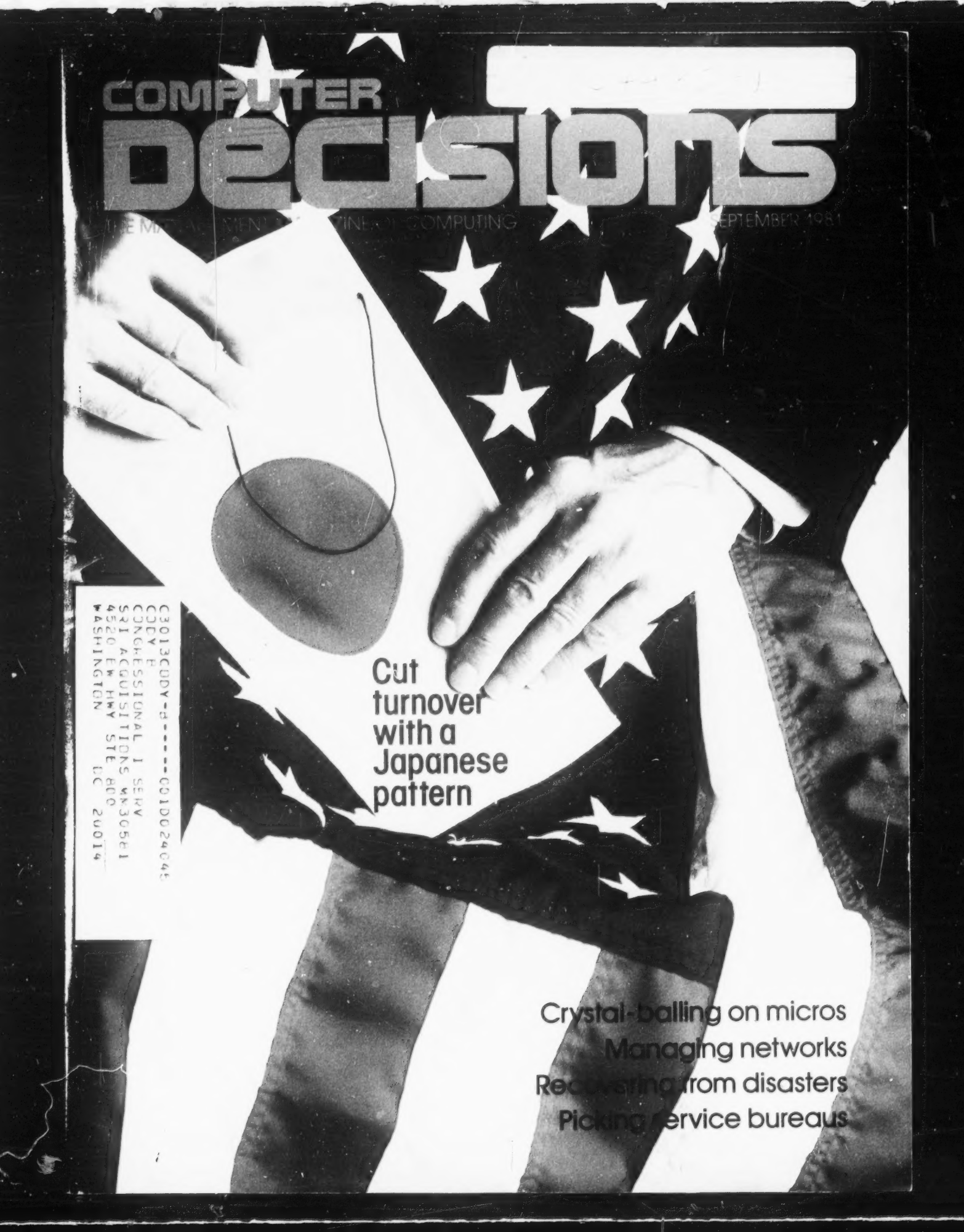

Cut turnover with a Japanese pattern

Crystal-balling on micros
Managing networks
Recovering from disasters
Picking service bureaus

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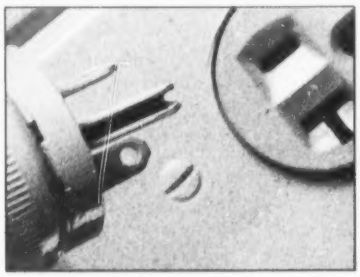

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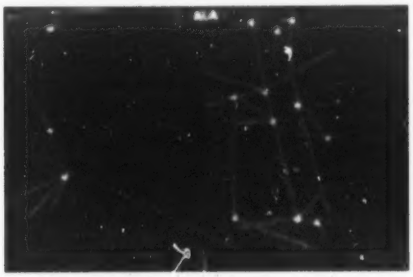

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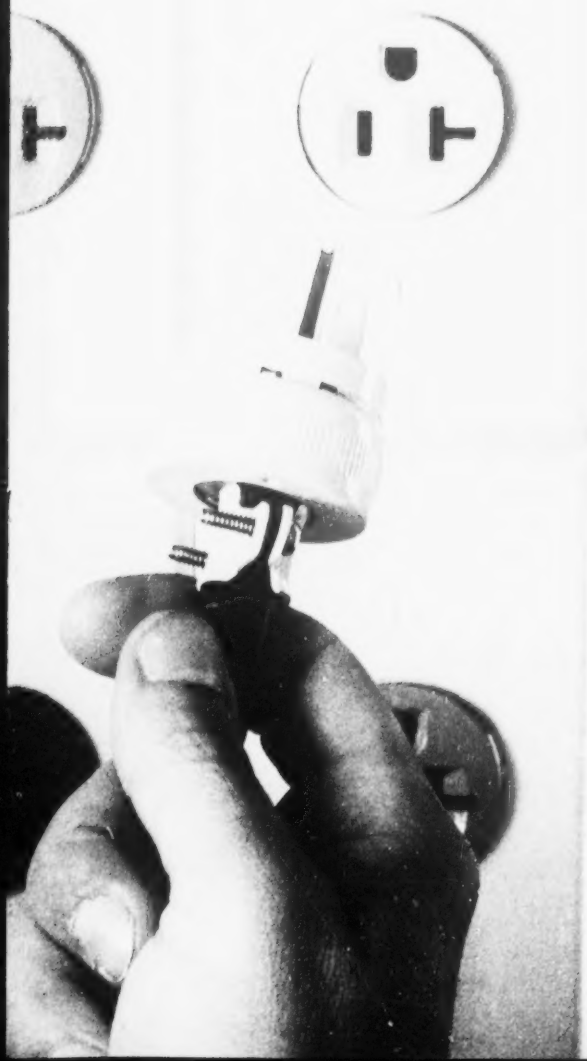
PLUGGING INTO THE RIGHT SERVICE BUREAU

The value-added service connection combines manpower and resources to provide special applications and an outlet for overburdened in-house operations.

by Josh Martin



Computer service organizations, like computers themselves, have become more and more sophisticated and specialized to serve the variety of needs of their customers. Traditionally offering mainly timesharing services, these companies have expanded to "value-added services," providing both computer resources and skilled personnel. And in spite of heavy expenditures for in-house computers, value-added services are in great demand.

Appropriately, the term "service" derives from the Latin word "servus," meaning a slave. Service organizations should do just that: slave away so your company's needs are met. Of course, there is a price tag for services rendered. But what the user gets by turning to a service bureau instead of doing it all in-house is convenience and performance without the delays and hassles of developing a large, expensive, and perhaps below par application.

According to Warren Pyles, director of marketing at Boeing Computer Services, Morristown, NJ, the service bureau represents "a collection of computing and manpower resources that are integrated to address particular customer problems."

It is this combination of people and technology that makes the the service bureau unique and in demand, says Pyles. "A leasing or hardware-vending company just provides the computing resources; the service bureau assists the user and addresses his problems."

"Change is the best word to describe the state of the industry," says Frank Kline, vice president at the New York brokerage house of Drexel Burnham Lambert. "Traditional services are still there, but companies in the field are looking for new kinds of service. They can't be called service bureaus anymore. They're value-added suppliers." Such companies offer modeling, access to data bases, networks and a myriad of other services which

Service Bureaus

(Continued from page 75)

would be uneconomical development projects for users to consider on their own. As Kline puts it: "Successful service companies are developing proprietary software that no one user is going to create because it's too expensive."

Choosing a service bureau

What factors should you consider in selecting the best service organization to handle your applications (see "Testing your service supplier," page 82) ? There is a surprising degree of agreement among suppliers and users on what to look for; the selection process, according to both groups, should involve the following considerations:

- Can the service bureau handle the application according to the specified schedule?
- What is the professional level of the salesman and the service bureau?
- Can the equipment be brought in-house?
- Does the service bureau stay on top of the technology?
- Is there access to communication networks and other services?
- Do current users give the service bureau a good rating?

Also, when a value-added supplier is needed, look at several to see what they offer. (If you don't know of any in particular, consult business associates, hardware vendors, or user/vendor groups.) Management consultants can also be a valuable source of evaluation and information.

Cost is secondary

Interestingly, users and supplers agree that cost of service is a relative-

Services offered by major suppliers

Company	ADP	Boeing	GEISCO	Mcauto	Tymshare	Xerox
Size/clients	70,000	2,000	5,000	3,500	14,000	1,000
Training prog.		*	*	*	*	*
Specialization						
Accounting	*				*	*
Business/mgmt.	*	*	*	*	*	*
Dealerships	*			*		*
Energy/utilities		*	*	*	*	*
Engineering		*	*	*		
Financial/banking	*	*	*		*	
Government		*	*		*	*
Health				*	*	
Insurance	*	*		*		
Manufacturing		*	*	*	*	*
Capabilities						
Dp	*	*	*	*	*	*
Modeling		*	*	*	*	*
Payroll	*					*
Taxes	*				*	*
Inventory	*	*	*	*	*	*
Graphics		*	*	*		*
Intelligent terminal leasing	*	*	*	*	*	*
Communications access	*	*	*	*	*	*
Multi-site network link	*	*	*	*	*	*
Ddp			*	*	*	*
Database	*	*	*	*	*	*
Consulting service		*	*		*	*

Service Bureaus

(Continued from page 78)

ly unimportant factor. "The cost of service should be of no consideration," says A. Lawson Howard, vice president for marketing, University Computing Co., Dallas. "Paying $1,000 to $5,000 a month for input to design a $70 million plant is nothing. It's insignificant compared with the importance of getting the solution." However, several users stress the need for quality controls, clear billing mechanisms, and education programs.

Users typically spend $40 to $60 an hour on cpu, storage, and connect time. The more services you use, the higher the rate. A service company should specify the rates, and how they are determined, before you sign. Service invoices should clearly indicate what services have been used, when, and how much they cost. Some users also suggest that there be automatic service cut-offs, so that use doesn't exceed a set number of hours or dollars a month. However, most of those interviewed say the concept is irrelevant, since the real point of service bureaus is to get the job finished within a set time.

Larry Leslie, timesharing administrator at the Upjohn Co., Kalamazoo, MI, says that while the cost of the service isn't a major factor in selecting a service bureau, factors associated with the billing process are. "The biggest problem is that some vendors won't take responsibility for their own problems—debugging software, for example. The vendor should be responsible for correcting such problems; users should pay only once for services used." Leslie summed it up with a maxim: "If they provide the service, they own the gremlins."

Once you select a service bureau, you should manage it as if it were a division of your company, which, in a sense, it is. Arthur Marks, general manager, marketing, at GE Information Services (GEISCO), Rockville, MD, says that many users make the mistake of not appointing one person to handle all relations with the outside supplier. "You need a clear set of objectives and someone

"People often underestimate the time and resources needed to produce results." *Howard, UCC*

at the helm who is in charge of all relations with the service bureau." This is doubly true in the frequent cases where more than one supplier is involved.

Another common user mistake is failure to understand what the service costs are based on. Hillel Siegel, president of the Association of Computer Users (ACU), Boulder, CO, reports that when he first started using service bureaus, he was shocked at his bills. "In one hour, I spent over $800," he says. Now, however, he negotiates with the service organization for flat-rate costs for specific applications.

"Negotiate!" urges Siegel. "You're crazy to accept standard contracts. You should customize to meet your own needs."

Leslie, who is chairman of the Time Sharing Section of ACU, says that despite the ease of using a service organization, there are some problems. He cites six common mistakes users make in enlisting value-added services:

1. Users do not carefully select the service vendor.

2. They expect the supplier to do too much. (University Computing's Howard says, "The computer will only do what you give it information to do. I'm continually amazed at how often people underestimate the time and resources needed to produce results.")

3. Personnel aren't trained to understand the service. (Leslie notes that most suppliers offer training. "They want users to be aware," he says. "The educated customer is the better customer; that's why many service organizations stay away from small, unsophisticated companies.")

4. Users don't evaluate competitive services to get the better deal.

5. There is a common failure to agree on a specific set of functional specifications—a document explaining how data are to be handled. ("There should be a pre-defined acceptance test," Leslie says.)

6. Users fail to insist on thorough documentation of the system. ("If they don't," says Leslie, "they'll never be able to bring the application in-house. They'll never understand it.")

Business is good

Despite these problems, the service industry is booming. The more than 4,000 service organizations in the United States do far more than process payrolls. According to figures compiled by the Association of Data Processing Service Organizations (ADAPSO), Arlington, VA, there has been a distinct industry trend away from mere data processing and toward developing professional services and software products. In 1980, for example, revenues from processing services grew 17 percent, while value-added services increased 27 percent. Further, an ADAPSO supplier survey showed that much of the growth in processing services was due to price increases.

For users, this augurs well, because the growth will bring more services, while competition within the industry will tend to keep costs down. The service industry is already moving far beyond mere processing.

"We supply an end product—the answer," notes Frank R. Lautenberg, chairman of ADP (Clifton, NJ), one of the largest service organizations. "The answer is our

(Continued from page 80)

added value. Raw data goes in; useful information comes out. The client is completely removed from the complexities of computers and is freed from the burdens of capital investment for computing equipment."

The sad fact is that many in-house dp units and MIS managers are so preoccupied with their own departments or workloads, that they fail to spot new applications or solve old problems. According to a major study prepared for Control Data Corp. (Minneapolis) by Info-Dyne, Minneapolis-based management consultants, MIS managers "were not leaders in remote computer service usage or planning...otherwise the bulk of current service applications would have been successfully addressed with internal dp resources. It took outside vendors to meet internal dp needs."

"In-house empire builders often argue that they can do it cheaper, but they rarely compare apples to apples," says Robert Tillson, president of the Washington (DC) Consulting Group. "Service companies are at least 10 percent more efficient," he contends.

Attitudes are changing

While dp managers have feared service organizations, because they feel their positions threatened within their companies, service suppliers say a change in attitudes has eased tensions. "There was animosity in the early '70s," says Howard. Dp-ers saw us as competition, as a threat. But many now prefer to work in conjunction with outside service companies. They provide needed expertise and resources."

When contemplating using a service, you should seek input from the dp staff. If you suddenly announce the signing of a service, staffers may misinterpret this as a lack of faith in them. Hostility from the dp center can offset the benefits a service provides, whereas cooperation and consultation can produce unexpected rewards—such as alternate solutions to problems that originally led you to use an outside service.

Nevertheless, there are limits to the amount of work any in-house staff can do. Some companies, for example, assign service bureaus all the drudge work like payroll, while assigning more complicated and stimulating tasks (financial modeling, for example) to seasoned in-house staff. (Continued on page 88)

Testing your service supplier

To help users weed out deficient service suppliers before signing a contract, the Association of Computer Users has formulated a list of 10 questions. The questionnaire was compiled by Jesse Berst and provided to ACU members this spring, in the group's Time Sharing Section Newsletter. By asking a few tough questions up front, like those listed here, you can avoid being hoodwinked by a slick sales presentation or tempted to buy on the basis of a low price alone.

Berst advises, "If suppliers fail critical parts of this test, don't bother to get proposals from them, no matter how big they are, who their parent firm is, or how low they set their prices." Although you shouldn't expect anyone to get a perfect score, you can informally grade suppliers depending on their answers to pertinent questions.

1. Is the supplier experienced in your industry? (Users aren't just buying time on someone's computer; expertise is important.)

2. Does the supplier have the size and computer capacity to serve your needs? (Most small organizations don't have the computing service or manpower of larger ones. Further, large organizations can offer more consistent, growing service).

3. Can the supplier guarantee response time? (Be suspicious of the service company that guarantees a quick response 100 percent of the time. Expect the supplier to set a range.)

4. Does the supplier offer a flat rate?

5. How will the supplier train your operators?

- What are the instructors' credentials?
- How many operators can be taught at one time?
- Where will training sessions be held? (They're too expensive if they're held 800 miles away.)
- What training aids are used?
- How much does it cost?
- Are there follow-up and advanced courses?

6. Are the systems user-friendly?

7. What kind of after-sale support is provided? (Brace yourself, here is where the tales can get tall.)

8. Will the supplier take complete responsibility for maintenance? (A major reason for using a service is that it can minimize your maintenance headaches.)

9. Is the supplier flexible? (Chances are your data will be forced into a standardized program; the question is whether you can make changes within that context to better meet your needs.)

10. What happens later if you want to buy the programming? (The supplier may sell as well as provide service; this can benefit your operation in several ways. For example, you could buy or lease the same software for in-house use.)

This is only a beginning. Once you've narrowed the field, you can start asking for proposals and evaluating bids. Still, this simple test will help ensure that your finalists meet certain minimum standards.

For additional information on the Association of Computer Users contact the ACU Time Sharing Section, P.O. Box 9003, Boulder, CO 80301 (303) 443-3600.

Service Bureaus

(Continued from page 82)

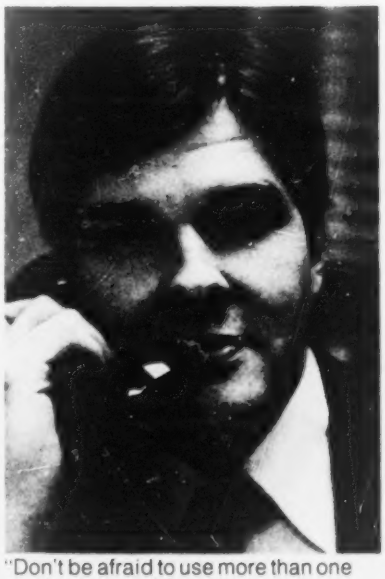
Frank Kline, vice president at the New York brokerage house of Drexel Burnham Lambert and a service industry analyst, agrees. Most leading-edge users view service bureaus as an extension of abilities," he says. "It was once feared that service would replace dp managers, but dp-ers are more enlightened now. The whole industry has grown up very fast."

Service companies are probably more responsive to user trends and complaints because they can usually be replaced, and thus are compelled to produce. Unlike a mainframe, or on-site dp centers, service bureaus involve low user investment costs, and must promise speedy or convenient information processing. Some suppliers claim services can routinely and substantially reduce computing costs. Realistically, this only applies under certain conditions. If the user company is large enough, it can easily afford to stay on top of new technologies. For them, service companies offer convenience. On the other hand, smaller companies that can barely afford to purchase a minicomputer and its attendant software benefit from the convenience and low entry costs.

For users, staying informed about service offerings can be a key to selecting the best service. Although a major weeding-out process took place in the early '70s, stabilizing the industry, there have recently been a number of mergers and takeovers that may affect your selection.

The big six

The chart on page 78 compares services offered by ADP, Boeing, GE Information Services, Mcauto (McDonnell-Douglas, St. Louis), Tymshare (Cupertino, CA), and Xerox Computer Sevices (El Segundo, CA). These six are major suppliers offering diverse computing services; still, they may not be right for you. Users with specific needs—particularly in scientific or research applications—often turn to smaller suppliers offering more customized service.



"Don't be afraid to use more than one service bureau."
Kline, Drexel Burnham Lambert

Users and industry analysts say that unless you have a very low service requirement, you should avoid dependence on one bureau. Tillson points out that the industry is segmented by target customers. "Particular service companies are targeted to particular functions and industry groups," he says. "Services should be knowledgeable in your company's business."

Tillson suggests companies "should try for solid relationships with two or three suppliers with broad capabilities."

Leslie says Upjohn works with 17 different suppliers, all of whom "bend over backward to keep up with the technology." Drexel Burnham Lambert uses five service outfits. Kline, Drexel vice president, points out that the use of several suppliers enables the firm to get the best service out of each one. He advises: "Don't be afraid to use more than one service bureau. Everything's pretty transparent as far as hardware interface, etc."

Kline says users should avoid service companies offering "grand design" packages that may not handle necessary applications. "Shop around," he says, "or you may be stuck with a package that costs you time and money."

In a recent study of Fortune 1000 corporations, only 12 percent responded that they exclusively used service suppliers to meet their computing needs; but nearly two-thirds of the respondents said they used some form of service in their operations. Most companies use service bureaus to process unusual workloads or get a seasonal chore done without having to expand in-house departments.

As service companies move to provide communication network capability, they are going multi-national to attract Fortune 1000 companies as clients. There is a disturbing trend to avoid smaller users (with billings of less than $2,000 per month). From the supplier's perspective, it is better to have a few large-billing clients than many small ones. Tymshare has 14,000 clients, paying from $100 to $400,000 a month for service, but a substantial part of its income comes from the 300 users who pay more than $4,000 a month for service.

The introduction of mini- and now microcomputer systems has had a mixed effect on services. (See "Financial modeling on micros," page 58.) Many businesses saw these systems as a way to avoid spending a lot of money on services or for an in-house mainframe and dp staff, while getting all the benefits. For some this was the case, but generally, 18 to 24 months after purchasing a minicomputer, a user found he had to increase his dp staff.

"Many users don't want to create a miniature processing center, nor do they want the hassles of a dumb terminal," notes Boeing's Warren Pyles. "They want something in the middle. They want something with a certain number of functions, providing the best productivity and cost-effectiveness without having to hire more personnel."

Look to the future

In fact, service bureaus should be considered for two reasons: special requirements, and future needs that

Service Bureaus

(Continued from page 88)

can be met by developments in the service industry. Many industry experts say the service you choose today for, say, payroll processing, should have the potential to provide substantial communication services in the future. These experts recommend services like Xerox, Tymshare, and ADP, which can either provide or can access communications networks.

Developments in the service industry are going to be closely linked to communications. This isn't just a matter of the service bureau providing a communications network; first there has to be a means to establish a network capable of carrying a hefty workload; this means expanding bandwidth capacity.

Bill Fello, a vice president of Xerox Computer Services, believes the trend is to offer a variety of different services through a single billing agent. He notes that Xerox used to just offer dp applications work on dumb terminals connected via telephone line to its mainframes; the company is now a sophisticated supplier of mainframe applications

"We supply an end product—the answer." *Lautenberg, ADP*

and software packages. In the future, there will be moves into distributed data processing, using a central computer plus intelligent terminals, micro- or minicomputers.

Many service companies now market equipment as well as the software to go with it. For example, Computer Sciences Corp. (CSC), through its Infonet distributed network system, bundles minicomputer hardware, software, network communications, technical support, and other services into a single price. GE Information Services can provide remote intelligent terminals or customers can use in-house hardware to access its Mark III network. Xerox Computer Services provides intelligent terminals with high-speed printers on which customers can do some processing. ADP can provide a complete minicomputer with multiple terminals to handle clients with requirements for heavy order-entry, invoicing, inventory control, or sales analysis. Some companies, like Tymshare, have specialized sales forces geared to key industry groups and government agencies.

Several service companies now offer sophisticated network services. The GE network boasts three host computers (in Ohio, Maryland, and the Netherlands) and three satellites. CSC's Infonet provides local dial-up access to 140 cities in more than 60 countries, to serve its 10,000 customers.

Some observers believe this increased competition is a prelude to another industry shakeout. Many service companies aren't prepared; they aren't keeping up with the latest technology and will probably go bankrupt—or be absorbed by emerging giants like Anacomp in Indianapolis (15 acquisitions in less than three years).

Services becoming specialized

All industry leaders are diversifying while offering special services to specific, targeted industry groups, linking different function areas. In general, you should select those service companies that are expanding in areas that correspond to your own company's computer-service needs.

"In order to survive, service companies are going to have to tie business data processing with office information systems," says Fello. "We want the customer to be able to link

Communicating in a crisis

If a disaster forces you to relocate your data-processing center, will you be able to take your communications network with you? Chances are, your special telephone line just won't stretch to your new location. If your backup site is in the same central office as your primary facility, the phone company should be able to plug you back into the network fairly easily using an auxilliary line. If you set up outside the central area, though, leasing a new line can be a significant expense. The other common alternative, dialed backup through the public system, can also be expensive. The public network is also not likely to have the necessary capacity to handle the demand in a crisis.

Communication via satellite offers another option. American Satellite Corp. of Maryland offers a capability called Quick Reaction Communications. A mobile Earth station located at the recovery site communicates via satellite to stations at other points in the network. You must plan and contract for these arrangements before you need them.

AT&T is also developing a satellite capability to serve areas affected by disasters. Called Transportable Emergency Communications System, the arrangement uses a mobile Earth station to carry up to 200 voice-grade channels through a satellite to a central office. The system is in the testing stage.

For more information on ASC's backup, *Circle 152.*

everything together." He notes that Xerox and other industry leaders are pushing to offer pure data-base, network, and office information system services. Specific trends include:

- more distributed data-processing portions of work being shared by the host computer and on-site intelligent terminals that can talk to one another and share a data base;
- more sophisticated data-base languages and management;
- development of network communications.

In the near future, a single bureau will be able to offer a multi-site system with intelligent terminals, distributed data processing, communication networks, data base, graphics, lots of memory, and a host of other features. Further, it will lease or sell both hardware and software.

"Most hardware vendors are unable to satisfy most user needs," says Charles G. Moore, senior vice president at ADP. "Computer services are a solution. They can provide everything users need to solve their problems, without the need to own hardware. Other benefits include quick installation, easy of use, and 24-hour access from almost anywhere in the world."

Service bureaus are a key supplement to the in-house resource. They can help you cope with surprises, smooth the rough edges of the in-house operation, or provide unique data bases. Choosing an appropriate supplier should be done with an eye toward your company's present and future needs; plugging into the right computer service bureau can juice up your dp operation. □

Report compares services

A comparative analysis of 24 timesharing services—covering pricing, facilities, support, performance standards, and other pertinent information—is available in a new report, *Timesharing Decisions*, from Real Decisions Corp.

The report guides users in evaluating their in-house facilities against those in the marketplace, and provides a detailed methodology for choosing a supplier. Users who purchase the 300-page report will receive a benchmark package containing listings of the 23 runs used as the basis of comparison in the report.

Timesharing Decisions can be obtained for $695 from Real Decisions Corp., 123 High Ridge Rd., Stamford, CT 06905 (203) 356-9200.

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	TI765 Bubble Memory Terminal	2,595	249	138	93
	TI Insight 10 Terminal	945	90	53	34
	TI785 Portable KSR, 120 CPS	2,395	230	128	86
	TI787 Portable KSR, 120 CPS	2,845	273	152	102
	TI810 RO Printer	1,895	182	102	69
	TI820 KSR Printer	2,195	211	117	80
DATAMEDIA	DT80/1 CRT Terminal	1,695	162	90	61
	DT80/3 CRT Terminal	1,295	125	70	48
	DT80/5L APL 15" CRT	2,295	220	122	83
LEAR SIEGLER	ADM3A CRT Terminal	875	84	47	32
	ADM31CRT Terminal	1,450	139	78	53
	ADM42 CRT Terminal	2,195	211	117	79
HAZELTINE	1420 CRT Terminal	945	91	51	34
	1500 CRT Terminal	1,095	105	58	40
	1552 CRT Terminal	1,295	125	70	48
TELEVIDEO	920 CRT Terminal	895	86	48	32
	950 CRT Terminal	1,075	103	57	39
NEC SPINWRITER	Letter Quality, 55 15 RO	2,895	278	154	104
	Letter Quality, 55 25 KSR	3,295	316	175	119
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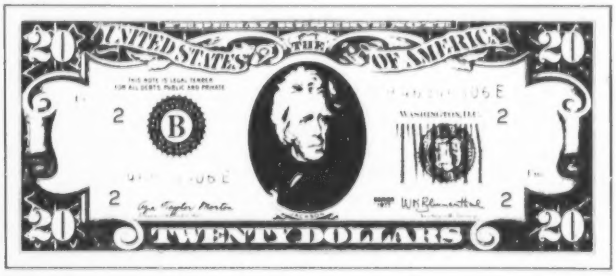

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COVER PHOTO: Ron Morecraft

by Gideon I. Gartner

FOLLOWING THE LEADERS

A viewpoint of the top 100 in data processing

For the second consecutive year, The Gartner Group consultants have closely tracked the leading companies in the computer industry, compiling a comprehensive database of statistics in the process. The results of this study show that mainframe and minicomputer makers are being overshadowed by makers of graphics, word processors, and micros.

How should we define leadership? In terms of absolute size, IBM is far and away out front; its data-processing revenues in 1980—$21.4 billion—exceeded the total revenues of the next 14 largest companies. In fact, in 1980 IBM gained $3 billion in dp revenues; this increment was larger than the *total* dp revenues of anyone else (NCR was No. 2, based upon absolute size, with $2.8 billion).

If we were to combine the attributes of size and growth rate, then Digital Equipment Corp. would be considered an undisputed leader. DEC has come from almost nowhere to No. 4 in 1980, and will be No. 2 in 1981. It combines high revenues ($2.7 billion) with high growth (35 percent in 1980).

But there are still other leaders which, on a strictly growth-rate basis, far exceeded DEC. (We are only looking at vendors which, on an absolute basis, ranked among the top 100; the cutoff was $48 million in dp revenue.) Who are they? Are their growth rates flukes or are they sustainable? Can they be grouped to logically describe the emerging trends in the computer business?

The table below lists the 20 corporations with the fastest-growing dp revenues in calendar 1980. These concerns can be grouped into three arbitrary categories. The first, which stands out like a golden thumb, is graphics. Five of the top 20 are succeeding because of the exploding

(Continued on page 68)

The top 20 in growth of dp revenue

		Growth rate	1980 dp revenues*	Prime market
1.	Sanders Associates	208.5%	$145.0	CAD/CAM
2.	Apple Computer Inc.	175.1	165.2	Microcomputers
3.	Philips Business Sys.	100.0	50.0	Word processors
4.	Tandem Computers	93.9	128.8	Minicomputers
5.	Intergraph Corp.	91.3	56.5	CAD/CAM
6.	Dysan Corp.	86.1	62.9	Media
7.	Computervision Corp	85.5	191.1	CAD/CAM
8.	Paradyne Corp.	83.2	75.9	Data communications
9.	Prime Computer	75.0	267.6	Minicomputers
10.	Teletype Corp.	72.4	250.0	OEM peripherals
11.	CPT Corp.	68.9	76.4	Word processors
12.	Wang Laboratories	66.1	681.8	Word Processors
13.	Lanier Business Products	64.1	128.0	Word Processors
14.	Triad Systems Corp.	61.0	60.2	Minicomputers
15.	Anacomp Inc.	60.1	57.0	Software/service
16.	Commodore International	54.1	98.7	Microcomputers
17.	Applicon Inc.	51.4	68.5	CAD/CAM
18.	Auto-Trol Technology Corp.	51.3	50.8	CAD/CAM
19.	AM International Inc.	49.0	98.8	Word processors
20.	Printronix Inc.	48.8	48.9	OEM peripherals

*dollars in millions

FOLLOWING THE LEADERS

(Continued from page 64)

acceptance of graphic solutions. From the top they are: Sanders, Intergraph, Computervision, Applicon, and Auto-Trol Technology.

Sanders "cheated"—it grew 208 percent by acquiring Calcomp's graphics business. Intergraph is a turnkey graphics vendor with its primary penetration in architectural, construction, and mapping applications. Computervision is the leading vendor in the computer-aided-design (CAD) marketplace, with a 38 percent share. These companies, together with Applicon, Auto-Trol, and others like Gerber Scientific Instruments (which just missed the chart with a 42 percent growth rate), could be categorized as either graphics or vertical-market companies. The vertical-market classification brings us to the two nongraphic, vertical-market firms that scored among the top 20: Triad and Anacomp—two companies with almost identical dp revenues, earnings, and growth rates, operating primarily in automotive-parts distribution and banking, respectively.

The office market is perhaps the biggest vertical market. Five of the top 20 in dp growth rate concentrate on office markets—Philips Business Systems (Micom), CPT, Wang, Lanier, and AM International.

The third technology highlighted is microcomputers. Apple and Commodore continue their growth leadership of recent years, with Tandy just missing the chart (with 47 percent dp revenue growth, $220 million in dp revenues). To describe the growth in this sector as anything but spectacular would be to ignore all the facts. Apple, for example, had less than $2 million in revenues as recently as 1977, and has been rewarded by the stock market with a capitalization that created literally hundreds of overnight millionaires (mostly on paper, since much of the company's stock is restricted and can't be sold). As the micros expand their capabilities while exploiting highly leveraged distribution channels, the growth will continue.

So far we have accounted for 14 of the top 20. Where are the minicomputer companies? Prime is there, although it may soon slip. Tandem is a special case in the transaction-processing business: It is not about to slip. Paradyne is the one clearly definable communication vendor, although its growth is being supported by selective forays into systems and peripherals. Dysan, Printronix, and Teletype are the sole representatives of the media, printer, and terminal businesses, respectively.

> Companies without a strong commitment to end users will suffer, since the greatest market elasticity is at the end-user level.

With the exception of DEC and one or two others, mini makers aren't really among the leaders anymore. If one stratifies the market into three horizontal systems layers, the mainframers are now experiencing less than 15 percent growth, mini manufacturers are around 30 percent, while the micro makers are over 45 percent. Thirty percent seems fairly good for the minis, except that the rate may soon plunge and the performance is already exceedingly variable. For example, while DEC, Hewlett-Packard, and Datapoint all grew about 35 percent in 1980, Data General, Harris, and Computer Automation were down 25 percent, and Management Assistance, Mohawk, Four Phase, General Automation, and Modcomp were all under 15 percent! The ebullient growth is clearly migrating down the price spectrum, and toward vertical markets. The mainframers and those mini makers that seem to be lagging are, or should be, scrambling to position themselves more effectively. For example, companies that do not have a strong commitment to end users will continue to suffer, since the greatest elasticity in the market is at the end-user level.

But can we ignore the magnitude of the mainframers' revenues in analyzing leadership? After all, NCR, Burroughs, Sperry, and Honeywell (if we apply some European revenue from CII-HB) each do between $2.5 billion and $3 billion per year, volumes which dwarf those of the fast growers, except for DEC.

In summary, the current "leaders"

- IBM, for sheer magnitude and reasonable growth prospects;
- DEC, whose management navigated a multibillion-dollar corporation up a 30 percent-plus growth-rate path; and
- companies achieving a significant competitive position within the hot growth markets, such as Tandy, Tandem, Computervision, and Wang.

It is worth speculating on who the potential future industry leaders are, with less regard for the specifics of 1980. For example, companies in the high-growth category that we did not discuss above include Hewlett-Packard (grew 37 percent), Texas Instruments (41 percent), Tektronix (38 percent), Dataproducts (44 percent), and several others. There are other organizations on the heels of the high-growth leaders, such as Storage Technology (26 percent growth in 1980, $603 million revenues). And let's not forget the large Japanese manufacturers which may expand in combination with present or future American partners, as well as one or two major U.S. company combinations that may yet evolve. □

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